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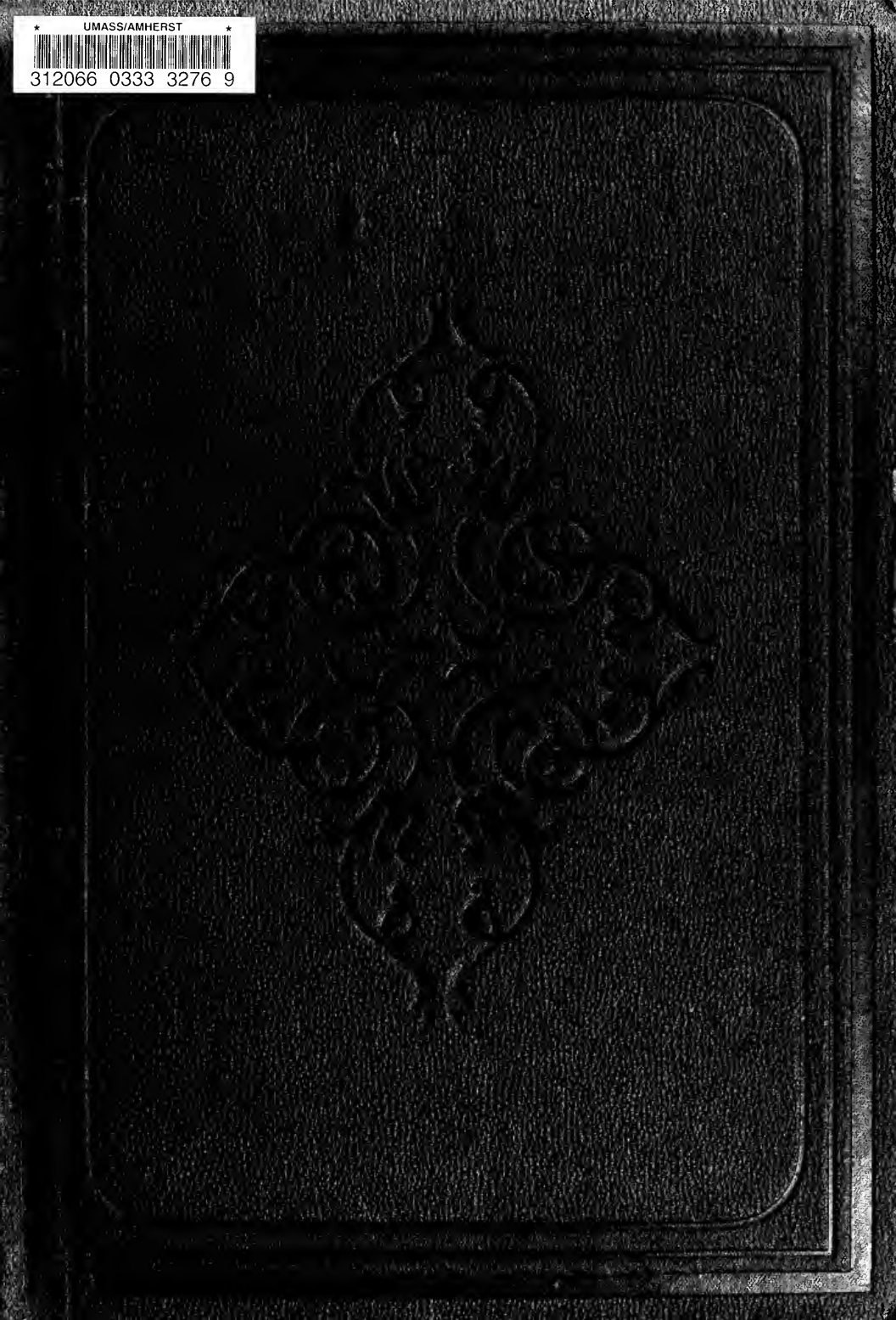

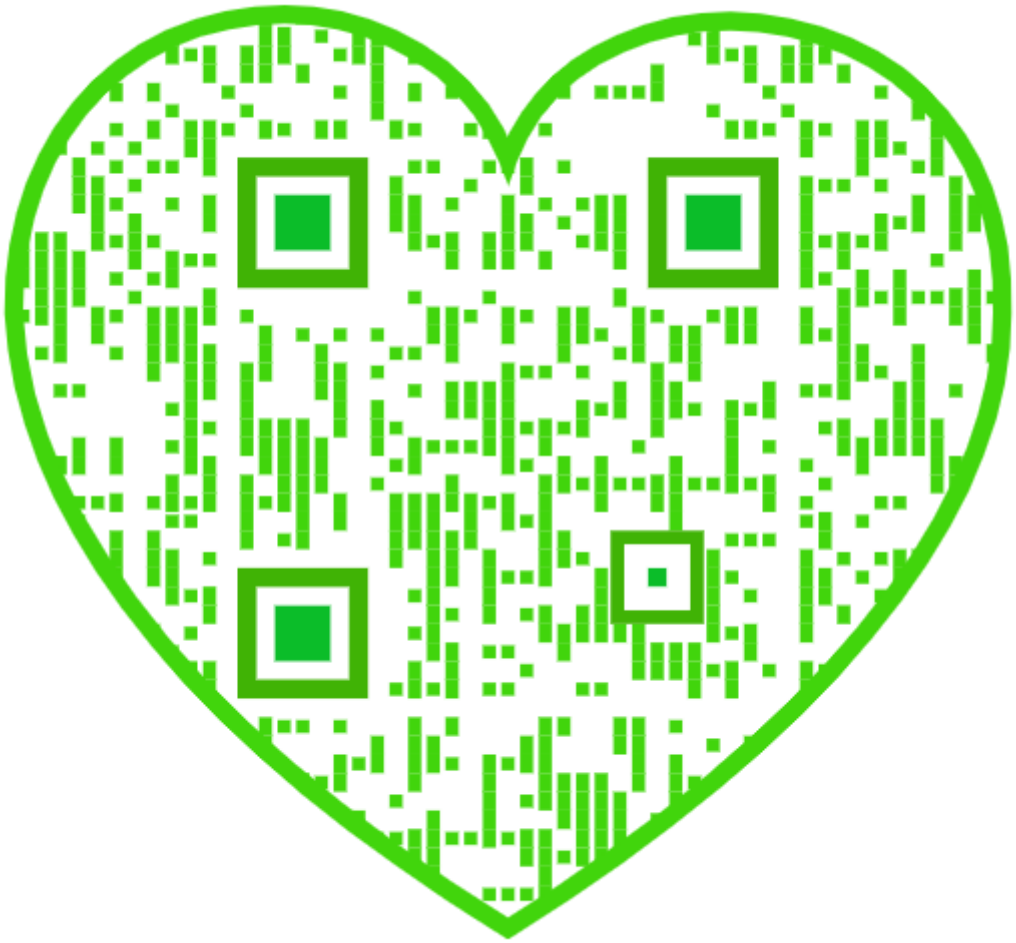

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THE

British Bee Journal,

AND

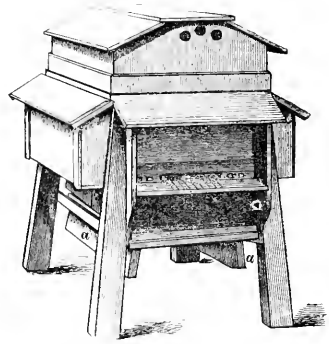
BEE-KEEPER'S ADVISER.

CONDUCTED BY

CHARLES NASH ABBOTT,
SOUTHALL.

VOLUME VII.

1879—80.



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FIRST PRIZE, ROYAL AGRICULTURAL SOCIETY'S SHOW AT KILBURN, 1879.

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THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 73. Vol. VII.] MAY, 1879. [Published Monthly.]

Editorial, Notices, &c.

TO OUR READERS.

In commencing this the seventh volume of 'our *Journal*,' as it is the pleasure of many correspondents and friends to describe it, we feel it our duty to tender our best thanks to all our readers for their increased help and patronage, and for their good-natured indulgence in remembering so few of our manifold derelictions.

Our aim has ever been the improvement of bee-culture, and in view of the rapid strides that have been made in that art since the *British Bee Journal* came into existence, six years ago to-day, it must be admitted on all sides that it has not lived in vain.

By its efforts, the great lever of progress, 'Association,' has been brought to bear against the conservation of ideas which bound the bee-keeping world, and taught that improvement was needless; and, indeed, almost persuaded it that finality had been reached. And even at the present time, so blissful is the ignorance which rules in many parts of this great country, that every attempt at improvement is scouted as 'new-fangled' and worthy only of contempt, and failure in such, from whatever cause, is hailed with delight as evidence of the same. Nevertheless, there is a happy brotherhood of gentlemen spread over the land, who, having been awakened to the importance of improved methods of *honey-getting*,—which is practically the real object in bee-keeping,—have been content to abide the sneers of the unenlightened; and missionary-like, have established about them a following that is ever increasing, and will eventually include all but those who are too old to learn or too proud to admit that they have been misguided.

The beginning of a new order of things, impinging on prejudice and superstition, naturally arouses opposition and makes the work laborious—a fact we have thoroughly learned during our experience in journalism; but it being a labour of love, we are assured that none who have put their hand to the plough will 'look back,' except to laugh at difficulties overcome; to be followed by a hearty cheer as they turn to the front to pursue their onward way.

The present aspect of affairs must be a source of intense gratification to everyone who in bygone days put his shoulder to the wheel to help the science of apiculture out of the slough in which it was wallowing, into life and light, and to place it in its true position on the proud eminence occupied by its sister sciences; and the country at large may be congratulated on the event, for assuredly a great good has been accomplished through the opening up of a neglected industry, which, rightly managed, must increase the national wealth, and confer a special boon on the needy classes.

Seeing that so much has been done, and, as may be gathered by those who will take the trouble to read these pages, that our 'glorious hobby,' as Mr. Shirley Hibberd has so happily styled the bee-keeper's pursuit, has taken deep root amongst all classes and is accounted worthy the patronage of the great and noble, we think bee-keepers may fairly take heart; and, while reverently thankful for past successes, determine to press onward and upward in their endeavour to obtain perfection in the science they love.

The chief work of developing the improvement of bee-culture will doubtless devolve upon the numerous Associations which have been formed throughout the land; and, backed by and working hand in hand with the *British Bee Journal*, which brought them into existence, and has ever been the faithful exponent of the thoughts, views, and wishes of all bee-keepers, there can be little doubt but that increased success will be the consequence.

It being admitted that the *Journal* has done, and is doing, good service in the cause we all have at heart, we respectfully hope that our friends will do their utmost to promote its circulation. Its columns are open for the full

discussion of all matters pertaining to bees, their habits, and the best means of cultivating them; and there may be found in the completed volumes, the best thoughts of the foremost men of the age, of all countries and climes: and we hope it is, as we have tried to make it, the bee-keeper's adviser, companion, and friend.

Tendering our thanks in advance for favours to come, and earnestly desiring to be more abundantly useful, we trust that during the season which is just commencing there may be much cause for rejoicing, not only in respect of a series of bountiful honey harvests, but also through the solution of at least some of the problems that cause differences of opinion, and which in turn lead to uncharitable conclusions. Unity is strength, and that we may all be undivided in purpose is the heartfelt wish of your obliged servant

THE EDITOR.

MAY.

We have just had an intimation that quarter-day has passed; and had not our rent receipts described it as Lady-day we could really have believed it to have been Christmas, so cold and wretched has the weather been, and that instead of writing of the fabled 'Merry Month of May' we were scribbling of 'February fill-ditch,' as the second month in our calendar is often described. April has been a most trying month, composed of weather of all sorts, sunshine being a phenomenon, while rain, hail, snow, wind, frost, and fog played sad havoc with the bees, and rendered their owners 'amiable,' as a matter of course. But enough of the weather—indeed, we have had too much of it, and are anxious for a change, believing that should such take place it must assuredly be for the better.

FLOWERS FOR BEES.—We were about to say that, like sunshine during the past months, flowers are matters of memory; but every one who saw the magnificent collection exhibited by Mr. Ingram of Belvoir, Grantham, at the British Bee-keepers' Conversazione in London on the 16th ult., must have concluded that the fault (or default) was not occasioned by the weather, but through want of knowing the flowers, and the means of cultivating them. In our own neighbourhood the white Arabis and the red flowering currant are the most conspicuous; but the cold and rain have prevented the bees from taking due advantage of their honey-yielding properties. Palm-bearing willows have blossomed in golden glory and scarcely been visited; while the gooseberries and currants, though in full flower, have had but few visitants from the hives, leading to a sorry dread that such fruits will be scarce in their season. Peaches and nectarines, out-of-doors, being under warm south walls close to the hives, have been well attended on such occasions as their occupants could stir abroad; but the bees all round have had to depend for the main source of their supply on the feeding-bottle and the artificial pollen basket.

BEGINNING BEE-KEEPING.—At the commencement of the season it is due to young hands that they should be cautioned against some of the dangers that beset the path of the inexperienced.

HIVES are the first objects for consideration, and without the slightest reserve we advise beginners to adopt a kind of hive that will enable them, or their expert friends, to thoroughly invade and examine them, if ever examination becomes necessary. Hives with fixed combs are to the uninitiated as a sealed book, one may read its title and the number of its edition, and they may find the name of its author, but its contents are invariably the subject of speculation only. Never should a beginner in these advanced days purchase a hive in which the combs and bees cannot be thoroughly examined, so that at any time its queen may be removed if old, superfluous queen-cells excised either for the prevention of swarming or for use in other hives, the honey extracted if required for table use, or to make breeding space for the queen, to give facilities for the removal of superfluous drone-comb and the substitution of worker, and to do the hundred-and-one things which may never be necessary, but for which provision should be wisely made.

BEES—STOCKS OR SWARMS.—*A beginner should never buy a stock of bees to commence with;* twelve words of wisdom that, if observed, would prevent much vexatious disappointment, and relieve bee-keeping of considerable odium. There be sharks on land as voracious as any that may be found in the sea, and any inexperienced fish coming within their 'ken' is liable to be swallowed alive, or so severely bitten as to make him afraid to again venture where there is so much danger; and bee-keeping thus loses many who might under more happy circumstances have become shining enthusiasts. We by no means wish it to be inferred that there are no honest *stock*-brokers in Great Britain, but we counsel young capitalists to avoid them, and leave them to deal with *old hands* 'on change.' It is hardly in the course of nature for a humane bee-ing to offer his best stocks for sale; he loves them too well, and has such pleasant anticipations of the results of their labour that to part with them would break his heart; and if a lover of bees has this kind of attachment, how much less would a lover of lucre be likely to give up his wealth-producers, when to an uninitiated customer he

could *sell* what he knows will be of no use for any other purpose? Again, stocks must not at this time of year be purchased at less distance than about two miles from the new stand they are to occupy; and it will be needless to say that beginners often purchase them from ten times the distance, yet in neither case is it remembered that the combs are liable to damage by the way, and that should such contingency occur, the beginner is at once thrown, as it were, 'on his beam ends,' without a notion of how to 'right himself.' Furthermore, stocks of bees may possibly be diseased, or become so through a long journey and the confinement consequent thereon, and the vendor is thus liable to unjust suspicion, even though it be undeserved.

Beginners, therefore, should, for the reasons given, always commence with swarms which they can have placed in the particular kind of hive they intend to adopt, and in which the bees will build new sweet combs, free from disease and not liable to create a suspicion that all was not right when they were purchased.

Swarms may be judged by their net weight: a four-pound swarm is a very good one, containing about 20,000 bees; five pounds is exceptionally good, but three pounds — about 15,000 bees—should not be despised. With old stocks weight is no criterion of value, since it gives no index to the number of bees contained within, which is, *par excellence*, the true test of their value at this time of year.

Hiving.—This is often thought to be a formidable work, but is really one most easy to perform. Bees when clustered as a swarm will be already gorged with honey, and indisposed to sting; nevertheless we advise all amateurs to wear a veil, and india-rubber gloves well gauntleted, so that under any circumstances they need be under no apprehension. To hive in a skep it is only necessary to shake the bulk of the bees into it, or on to the ground, and set the skep so that they can get into it. If the limb of the tree is too large to shake, a wisp of grass may be used as a brush to dislodge them, but everything should be done very gently and quietly. When the bulk of the bees are in the skep it should be placed on the stand it is to occupy, and the straggling bees will go to it, or to the parent stand.

Hiving in Bar-Frame Hives.—We are continually being inquired of as to the best means of hiving in bar-frame hives, especially when they have fixed legs; and now the quilt and comb-foundation are so generally used, the time has come for a slight variation from the usual custom. It is well known that comb-foundation is often too fragile to bear the weight of the bees clustering upon it, and therefore it is important that a hive furnished with it should not be liable to a jolt or other movement that may cause swaying or motion of its contents. We therefore recommend that the hive should be prepared and placed on the stand it is to occupy, attention being paid to its levelness in all respects, and when the swarm has clustered it should be caught in a skep (or other vessel) in the way above described, the skep being set down under the tree for a few minutes that the presence or absence of the queen may be determined, and in the meantime the roof of the hive should be removed, the quilt turned up at the side so that about three frames should be exposed.

A stone should be laid upon the quilt to keep it from turning back or being blown off the hive, and the frames removed and set gently aside. The skep containing the bees should now be brought to the hive and the bees poured in at the open part. They will, as a matter of course, make a buzzing commotion which will have the proper effect of attracting the attention of the stragglers near the swarming place, but the bulk will run under the sheltered part of the hive amongst the frames. The frames taken out should now be returned, and the quilt laid smoothly down. If the bees lounge about outside the hive, the quilt should be drawn forward so as to leave open a half inch of space at the back of the frame to give ventilation, and the cover or roof should be laid over in an ill-fitting manner, to give the bees access at the top as well as at the entrance, and to ensure free circulation of the air. At evening the quilt should be replaced by gently drawing it back and the hive properly covered down.

If the swarm has clustered at a great distance from where the hive is to stand, the bees should remain in the skep until the evening, when the above should be gone through, the final covering down being delayed until the great majority of the bees are safe within the hive.

Making Wax Sheets.—The *modus operandi* by which wax-sheets may be most expeditiously and cheaply made was given by us to the bee-keeping world at the commencement of Vol. III. exactly four years ago, and the description is worth perusal. By request we now give a short *resumé* of the proceeding, thus:—

Procure a tin vessel about half as deep as the sheets are to be and of the full width, which nearly fill with hot water, and add wax until an inch or more is melted and floating on the top of it. Have ready a dipper of yellow deal as large as the sheet is to be, into either end of which drive a nail leaving an inch projecting. Soak the dipper in cold water, wipe it dry, and holding by one of the nails dip one half of it smartly into and out of the wax, hold it a second and catching the nail at the other

end, dip the other end in like manner, thus coating the dipper throughout. If these operations be quickly performed, two sheets will be made which will flake off the dipper, and may be laid aside for impressing between plates, or for cutting into strips for use as plain guide.

To impress the sheets in the ordinary way they are slightly warmed, and laid between two properly fitting impressed plates that have been slightly moistened with soapsuds or thin starch, when, pressure being applied, the corrugations are formed according to pattern. To form the comb-foundation now in use, the sheets are passed between rollers, the pressure being very great and carefully regulated.

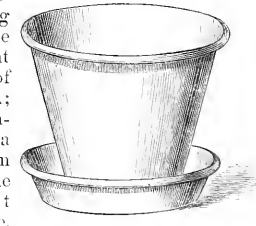
Supers—Dovetailed Sections.—Although, in deference to old-fashioned notions, associations continue to offer prizes for huge glass, or wood and glass, supers (a proceeding with which we entirely disagree), we strongly urge all beginners to use sectional supers, and none other. Let us also add a word of caution in respect of what are called 'dovetailed sections,' which in reality are not dovetailed at all, but simply 'tenoned,' or 'half-mortised,' and unless glued or nailed, will not hold together. 'Shall we use the sections that are nailed or those that are dovetailed?' is a question propounded in the (*American*) *Bee Journal*. 'We much prefer those nailed; the nails add to the strength for shipping, while the dovetailing is a point of weakness instead of strength. The comb being the only thing to hold the latter in shape the (dovetailed) sections cannot be so strong as those nailed.' Such is the Editor's reply.

Dovetailing, mortising, and tenoning, are very pretty when nicely done; but for strength, unless glued or nailed also, there is nothing will hold like cross nailing with French wire nails, whether for frames, sections, or hives.

Stands.—Anything will do for a stand, but some are much better than others. An earthenware drain-pipe (usually two feet long), planted a foot deep in the ground, and rammed tightly full of earth, forms an inexpensive and indestructible stand, as useful for its original purpose after twenty years as at first. A nine-inch pipe, with its socket-end uppermost, would give a base of about 12 inches diameter for hives to rest upon, and would cost at any builder's yard about two shillings; but it is possible that chipped or damaged pipes might be obtained for 'a mere song,' yet be equally effective for the present purpose.

It has just occurred to us that a stand might be made out of a flower-pot and its saucer, that would not only answer the purpose better than most others, but would be highly useful in other respects.

Take a flower-pot or earthen pan of about 12 inches top diameter (if a long hive be in use, use two), and cement it to a saucer of the same material; or if a saucer cannot be obtained a circular seed-pan will do, the whole costing about ninepence. Here, then, is formed a stand, and a water vessel, the former to be filled with earth to give it weight and stability, and the latter to be filled with water, either as provision for the use of bees, or as a protection to the hive against ants, or other crawling or creeping vermin. The pan should be set firmly in the earth. *This idea is worth double the cost of the Journal to every bee-keeper.* There are many other stands in the market, but none, we think, that can be more simple, or effective, or more easily obtained. *Earwigs* (or earwings) being able to fly, cannot positively be prevented access to hives.



Aspect is usually supposed to refer to the direction in which the entrance of a hive faces; but that is really of very little consequence, provided that in winter it be where the sun can shine upon it without lighting up its interior. In summer it can, of course, be shaded from too much glare and heat. We would prefer that aspect should be considered with regard to the protection afforded to the hive by shrubbery, hedge, or wall. The north side of a high wall should be carefully avoided—it means usually dampness and dysentery in winter, and death as a consequence.

CHEAP HIVES.

At the late Committee meeting of the British Bee-keepers' Association, a letter was read from Mr. Carr, of Newton Heath, Manchester, decrying cheap hives, as having done more to disgust people with bee-keeping than anything else; and Mr. Cheshire followed suit with an inverted compliment in the same strain, describing them as 'wretched' as well as 'cheap.'

Now, without intending to be in the least degree personal, we take leave to differ entirely from the conclusions which have been arrived at by the above hive-inventors. We know perfectly well, that manufacturers who make and sell hives do not care to be bothered with orders for those classed under the term 'cheap,' because they bear such a wretchedly small profit; but, as was questioned by the Rev. Canon Kewley, the President at the conversazione on the 16th ult., how can we expect to

convert the working-man from the errors of the brimstone pit, to the use of the bar-frame principle, if he cannot obtain the latter at a cheap rate? We quite believe, as Mr. Cheshire stated, that a cheap hive which he had seen, fell to pieces, and that the contents were damaged, if not lost; but is it not possible that there are cheap hives, and cheap hives? We have seen some of the most wretched specimens, vended by those whose interests are centred in high prices, which we considered were specially designed to disgust the purchasers and give opportunity for outcry. But we trust the British Bee-keepers' Association will not stultify itself by acknowledging the principle suggested by the complainers. In our opinion, the grandest work the Association ever did was the offering a prize which brought forth a Woodbury bar-frame hive without roof or floor-board for 3*s*. This was in 1874, and to Mr. Hunter it is due that the price was limited to that sum. We won the prize offered; and thousands of hives of the kind have been scattered broadcast over the land, and, admitting that the wood is not so thick as some think necessary, and is unplaned, we defy all the fault-finders in England to prove that they are not equal, internally, to the best Cheshire, Carr, or other form of the Woodbury hive extant at the time.

We hope this subject will be well ventilated. It is monstrous that the Association should be stirred up to the neglect of its first duty, and the upholding of high-priced hive-makers. The writers of books take care to puff their high-priced wares in the most sickening manner, to the utterly condemning those of all others; but while we are permitted to remain Editor of the *British Bee Journal* its pages shall never be so defaced. If an opinion is asked it is candidly given, and if any be aggrieved they have full opportunity of explanation.

THE QUILT AND FEEDING.

After the experiences of the past winter there can scarcely be a bee-keeper with the hardihood to deny that the quilt is the very best form of crown-cover for bar-frame hives. We do not stipulate that it must be of any special form or construction, only for winter it must be composed of material through which the vapours of the hive can ascend and disperse. We use one thickness of ticking (hair-cloth is the best material, but is rather expensive) next the frames, and three or four of flannel on top of it, and that is ordinarily sufficient.

'But,' says the amateur, 'how am I to feed my bees with the quilt upon the frames?' and the reply is, Cut a hole through it with a sharp penknife, and place a feeding-stage over it. The hole should be about an inch long and half an inch wide, between two of the frames where the bees are clustering.

UNITING QUEENS.—QUEEN ENCASEMENT.

In describing the operation of uniting—which has been, and is, considered a risky performance—there are rules to be observed which, though not infallible, may be accepted as the best for every-day guidance. We have in former articles shown that it is not politic to endeavour to unite a costly queen with old bees under any circumstances; for the probabilities are that the latter will encase the former, and so injure her that if death does not immediately ensue she will be rendered comparatively valueless. It does not appear to be understood whether the act of encasement arises from love or hatred. We have been inclined to believe that the former influenced the destroying act; but it may be a perfectly natural embrace intended to stimulate the queen into activity.* Be it how it may, with our present light we would not advise the introduction of a valuable Ligurian queen to a stock that has been long queenless, but would prefer to remove a common queen from a prosperous colony in which there are plenty of eggs, young brood, and hatching bees. We would then take the Ligurian queen, and putting her (alone) into a cage,† would fix her amongst the brood by passing a long pin through the cage, and into one of the combs, and closing the hive would leave her for forty-eight hours,

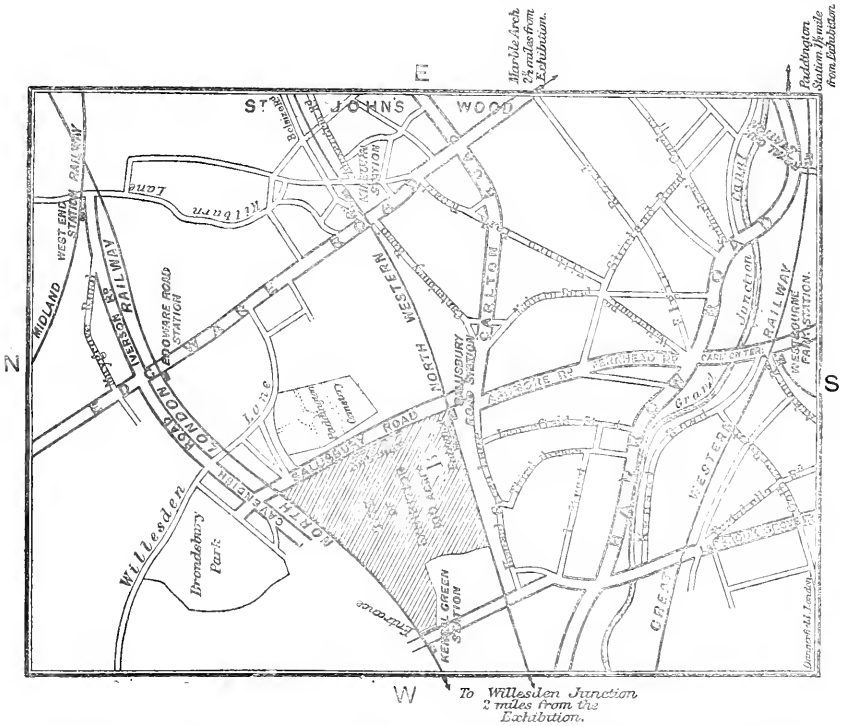
* Immediately after the long frost we were examining a series of hives, and in one row found no less than five cases of queen encasement, the balls of bees being separated from the cluster, and lying, or rather rolling, on the bottom of the hive and frames. Seeing so many instances, our junior suggested that possibly the bees were stimulating their queen to oviposition—and perhaps that is the solution of the question. Having got the idea we think it easy to trace the reason for so much encasement of queens by old bees—*i.e.* those who know instinctively that eggs are a positive necessity; also, the loss of old queens in spring—*i.e.* when they require a good deal of stimulation (hugging) to make them commence laying; and it may account for some queens being encased and others happily received under apparently similar conditions, the encasement being caused by the bees' perception of the queen's condition respectively, one being ready to begin laying, another immature and requiring stimulus. This is, we think, a new idea, and one worth pursuing.—Ed. *B. B. J.*

† The cage is formed of a piece of wirework or perforated zinc, rolled or beaten into a flat tube, about four inches long and 1 in. by ⅜ in. internally, a plug of wood being fitted to either end.—Ed.

when we would set her free, and if well received by the bees would close the hive and leave her. *(To be continued.)*

BEES AT THE ROYAL AGRICULTURAL EXHIBITION AT KILBURN.

Through the energetic action of Mr. Peel, the Hon. Secretary of the British Bee-keepers' Association, a site for the exhibition of bees and their belongings has been secured within the Royal Society's grounds, which we think could scarcely be surpassed for convenience to exhibitors, and the certainty that their exhibits will be seen. The 'position' is directly in front of the railway entrances from the London and North Western Railway, passing through which, machinery in motion will be found on the right, cattle-sheds with a Temperance refreshment-bar diagonally to the left, implements further on to the right with refreshment-bar in front, cattle again to the left, and between this battalion of



cattle-sheds, and the next containing implements on the right, the bees will be found, we hope comfortably ensconced amongst the trees which are shown upon the Society's large plan. On the small plan, which is here exhibited, the spot is marked by a B, and we hope will prove a rendezvous for all interested in the culture.

BRITISH BEE-KEEPERS' ASSOCIATION.

ENGAGEMENTS FOR THE BEE-TENT FOR 1879.

June 26.—Aylesbury Horticultural Show.

June 30 and following days.—The Royal Agricultural Show, at Kilburn.

July 10.—At Hertinfordbury, near Hertford.

July 22-24.—British Bee-keepers' Association, South Kensington.

July 29.—At Shendish Flower Show, Hemel Hempstead.

Aug. 8.—Berkeley Flower Show, Gloucestershire.

Aug. 14.—St. Mary's Cray, Kent. Bee and Honey Show.

Aug. 20 and 21.—Shropshire County Bee and Honey Show, at Shrewsbury.

Aug. 26.—At Long Buckby Flower Show, Northamptonshire.

FIXTURES FOR SHOWS OF THE DEVON AND EXETER BEE-KEEPERS' ASSOCIATION.

July 3.—Branch Show at Tiverton.

August.—Central Show at Exeter.

Hon. Sec., Wm. N. Griffin, Rock House, Alphington, Exeter.

USEFUL HINTS.

During bad weather swarms should be well supplied with artificial food, and their hive entrances should be narrowed to protect them from the effect of cold. Twenty-one days after swarming is the best time for transferring from skeps, after which the latter should be burned to prevent their becoming the nests of wax-moth. Destroy queen-wasps wherever found. Get ready supers (sectional far preferable), and have on hand some spare hives; the cheap Makeshifts are invaluable for emergencies. There is a great outcry going on against 'cheap hives,' but cheapness does not always mean inefficiency. Stop robbing as quickly as possible. A piece of round hole excluder zinc placed against the entrance of an attacked hive will put marauders at a disadvantage. If ordinary means do not avail, tie the hive up in a cheese-cloth and remove it to a cellar, putting an empty hive in its stead. Unite weak stocks. Give queens or ripe queen-cells to all swarmed stocks. The boxes in which Ligurian queens arrive do well for hatching out spare queen-cells if the bees in these are sufficiently numerous, and it is better to use the latter for that purpose than to attempt to unite them to existing stocks.

Artificial swarming may be practised on strong stocks. Sow and plant seeds and flowers for bees, and prevent the growth of weeds about the hive. Don't forget to send your subscription for the *Bee Journal;* and if any further information is required send the questions on one page and leave room for the replies on the other, and enclose a stamped directed envelope to the Editor. It is far easier to write Yes and No to a set of simple queries than to be obliged to recapitulate before replying to them. We all hope for good luck, let us all try and deserve it.

BRITISH BEE-KEEPERS' ASSOCIATION.

The first quarterly committee meeting for the reception of representatives of county associations was held at the Board Room of the National Chamber of Trade, 446 Strand, on Wednesday, April 16: present, Rev. G. Raynor, and Messrs. T. W. Cowan, F. Cheshire, C. N. Abbott, R. R. Godfrey, J. Hunter, J. M. Hooker, W. O'B. Glennie, Treasurer, and the Rev. H. R. Peel, Hon. Sec. On the proposition of Mr. Hunter, seconded by the Rev. H. R. Peel, Mr. Cowan was voted to the chair.

The Chairman read the minutes of the last committee meeting. Mr. Abbott took objection to the statement that the Prize Schedule for the forthcoming annual show at South Kensington was to be again revised. He thought it was quite understood at the last committee meeting that additions only were to be made to it.

Mr. Hooker stated he was also under the impression that the arrangements made in the Schedule at the last committee meeting were final, and were only subject to additions made to the same. The word *revision* was thereupon struck out, and the word *addition* being substituted, these minutes were unanimously confirmed and signed.

Mr. Hooker moved, and the Rev. H. R. Peel seconded, 'That the member of the committee having the greatest confidence of the Association, as shown by the numbers polled at the late election, shall be chairman of the committee during the year. And in the event of his absence that the member present who shall at the election have had the largest number of votes recorded in his favour do take the chair.'

Mr. Abbott was of opinion that the above motion was out of order, inasmuch as one meeting of the committee had already been held since the election, and on those grounds he should vote against the resolution. The resolution was carried, the Rev. G. Raynor, Rev. H. R. Peel, and Messrs. F. Cheshire, R. R. Godfrey, W. O'B. Glennie, J. Hunter, and J. M. Hooker voted in favour; Mr. C. N. Abbott against the same. The Secretary then, at the request of the meeting, read the results of the election, as follows:—

For Mr. Cowan, 154 votes; Mr. R. R. Godfrey, 133; Mr. C. N. Abbott, 115; Rev. E. Bartrum, 113; Rev. G. Raynor, 105; Mr. J. Hunter, 98; Mr. J. P. Jackson, 94; Mr. F. Cheshire, 92; Mr. J. M. Hooker, 87.

The Committee proceeded to revise the rules and regulations for the management of the Association's annual show, in accordance with the resolution passed at the general meeting held on October 7th, 1878. After considerable discussion, the following rules as amended were duly passed, viz.—

1. That all persons intending to exhibit shall return their entry forms (which shall be sent out with the prize lists) to the Secretary at least eight days previous to the show, stating distinctly the number of entries in each class, the space which will be occupied by the articles exhibited, and the prices at which they will sell their exhibits.

2. That at the exhibitions all articles exhibited must be *bonâ fide* the property of the exhibitor. All honey must be the produce of his own bees during the current year. All exhibitors to whom prizes are awarded shall sign a declaration to the above effect (if required to do so), and should any infringement of this rule be discovered all awards shall be forfeited, and the person disqualified from exhibiting for three years.

3. That all exhibitors are required to state on their entry forms the prices at which they will sell their exhibits, otherwise they will be entered in the catalogue *Not for Sale*, and so labelled at the show.

4. That all articles intended to be exhibited shall be delivered, carriage paid, at the place of exhibition on the day before the show, and shall have affixed to them the names and addresses of the exhibitors. Exhibits in the classes for honey may be delivered by the exhibitor himself or his assistants on the morning of the show not later than ten o'clock.

5. That all articles exhibited shall be considered as entrusted to the care of the committee from the time they are delivered at the place of exhibition until the close of the same, and no interference will be allowed with the exhibits during that time without the special permission of the committee, who will take every care of them, but will not be responsible for any loss or damage that may occur.

6. That the judges be appointed by the committee, and that their decision be final in all cases.

7. That the judges shall have the power of withholding any prize in the case of an exhibit of insufficient merit, and shall also have the power of awarding an extra or special prize to any exhibit which they may consider specially meritorious.

8. That no person other than the Secretary and his assistants can be allowed, on any pretence whatever, to be present during the examination of the exhibits by the judges, except at the special invitation of the latter.

9. That a judge shall not be allowed to compete for a prize in any class in which he may be called upon to make an award.

10. That these rules and regulations be printed and supplied to all members and exhibitors, and that no member or exhibitor be absolved from the effects of these rules on any allegation of not having received them.

The above rules having been passed, a general discussion ensued upon the following regulation as inserted in schedules of former years, which had never been strictly carried out, viz. 'Each exhibitor must be prepared to guarantee that he will supply any number of similar hives at the prices affixed to his exhibits: the prizes will only be awarded on this understanding.' After much discussion, and the time allotted for the committee meeting having expired, it was decided to adjourn the meeting for the further consideration of the regulations for the management of the annual show until the following Wednesday, April 23, at four o'clock, and the county representatives present were requested to write to the Secretary giving any suggestions they could to assist the committee in this matter. The following county representatives were present, viz. Captain Campbell and Mr. F. H. Lemare for Surrey; Rev. Canon Kewley and Rev. F. C. J. Jenyns for Hertfordshire; Mr. Holloway and Mr. Bourne for Lincolnshire.

Several of these gentlemen offered suggestions upon the points which they heard discussed during the meeting, to which the committee gave their attention and consideration. The Secretary reported that besides having received letters from the secretaries of the Shropshire and Dorsetshire Associations, regretting that, owing to the distance from London, their representatives were unable to attend, he had received a letter from the secretary of the Devon and Exeter Association, conveying the following resolution, passed at their last meeting, which was read as follows:—'Resolved, That the secretary be requested to write to the secretary of the British Bee-keepers' Association, stating that this committee are not quite clear on the point of responsibility. By the word "affiliation," would county associations in any way be responsible should at any time the Central Society be in any pecuniary difficulty?' In reply to the communication received from the Devon and Exeter Association it was unanimously resolved—'That the Committee of the British Bee-keepers' Association do not expect county associations to be responsible for the debts of the Central Society. Nor would the British Bee-keepers' Association be responsible for the debts of the county associations.'

The Treasurer then read the Balance Sheet for the month ending March 31st, as follows:—

	£	s.	d.
Income	77	11	1½
Expenditure ...	10	0	11½ (all accounts being paid.)
Balance in hand..	67	10	2

The meeting adjourned till the following Wednesday.

THE CONVERSAZIONE

then took place, and after refreshment, the Rev. Canon Kewley was called to the chair, who briefly introduced Mr. Cheshire and the subject for discussion, viz., 'Abdominal distension of the Hive Bee during winter, and the means of checking the same.'

Mr. Cheshire, after a few introductory observations, said he ought, perhaps, to explain why he chose this subject. Some reference had been made in the *Bee Journal* to the economy of the hive, and underneath was a foot-note in which it was stated that this was new, and also that it was an exceedingly important question for bee-keepers. It appeared to him it was not new, inasmuch as the whole argument had been before the scientific world for some years, and he had explained the action of food and the reason of the distension of the abdomen of the bee in the *Journal* soon after its establishment. As he should proceed, it would be found he had nothing much to offer beyond what was stated in the article referred to. In order that they might all understand one another and have common ground for discussion, he must say a few words as to food generally and in reference to bees in particular. Physiologists divided food into two classes, one contributing to force and the formation of heat, and the other building up material other than fat. Pollen was exceedingly rich in nitrogen, and contained, also, abundance of phosphorus and other matters which constituted it a tissue-forming food. Honey, on the contrary, was a hydro-carbon, consisting almost entirely of saccharine matters, and, like common sugar, did not undergo digestion, but simply transuded through the delicate tissues into the circulation, becoming utilised for giving heat and force. So used, it is converted into water on the one hand, and carbonic acid gas on the other. This escaped through the lungs, no residue remaining to be carried off in the excreta. This might be proved by heating ordinary sugar, when it would pass through changes like those made by it in the animal economy, and if it were perfectly pure no semblance of ash would remain. When the bee took honey it was gradually absorbed into the fluids, and passed off from the organization of the bee through the breathing apparatus. When he said honey, from whatever source it might be obtained, it always contained a smaller or larger amount of pollen, which was of nitrogenous substance, and would contribute a small amount to the bowels. Honey was converted into carbonic acid gas and water. The same result followed the burning of a candle, having been consumed it would leave nothing but ash, which would be a portion of the cotton-wick to be returned to the earth whence it was taken. During the time of the burning heat would be coming from it, and the same process took place in the economy of the bee; when sugary matters undergo oxidation by union with oxygen they pass off into the atmosphere, and heat is developed. He then proceeded to explain the internal structure of the working-bee, pointing out that it possessed five spiracles, or openings on each side of the abdomen, and two on each side of the thorax, by means of which the air was taken in. If the bee desired to produce a larger amount of heat, this could be done by the telescopic vibration of the abdomen. It was a matter of considerable interest that the large air-sacs were not possessed by the queen-bee, in which they were replaced by ovaries, or egg-vessels. The reason was very clear. The queen did not have to produce temperature—that might be left to the workers. The air-sacs of the worker are only fully distended during flight, and this distension aids, or rather renders possible, the rapid expulsion of excrementitious matters at the moment the abdominal segments are drawn together by a muscular effort. The bee, bloated with effete products, and too weak to fly, can only so feebly perform the act of extrusion that its abdomen is soiled by the nauseous trail. He adverted to the difference of opinion upon the formation of the spiracles, and having given considerable attention to the subject thought every one of the authorities that he had read seemed most distinctly inaccurate. There was a crescent-shaped plate attached to a muscle over the back face of the spiracle, by which it could, he believed, be closed at the will of the bee.

But that point he would leave at present. A cluster of bees, if fairly numerous, with an external atmosphere of 40 degrees, would, while remaining in absolute rest, oxidize sufficient honey to maintain there necessary temperature; but, supposing the surrounding air should suddenly fall many degrees, what would happen? The previous condition of restfulness would be changed for activity, and cases were not wanting in which cold, which tends up to a certain point to dormancy, becomes itself a stimulant. In animals that hybernate they remained perfectly still while the surrounding atmosphere was simply cold. As the air chilled intensely however, the breathing was quickened, and oxidation increased; so that there was generated a larger amount of heat, and that larger amount of heat screened them from the cold, and they were brought through the trial without harm. It was just the same in the case of bees. With a very low thermometer they began to vibrate their abdomens, as before stated. In the restful condition there was the oxidation of honey or saccharine substances producing carbonic acid and water, only waste. Now they had nerve (because without nerve-action there was no muscular action), and muscular waste, producing material which passes to the bowels. But suppose the cold continues and the temperature falls very much. It had been remarked that cold itself would not hurt bees; that, he thought, was simply a blunder. Cold *did* injure them, especially when the temperature became so low as to necessitate agitation in order to enable the bee to withstand it. In prolonged spells of intense severity, stores often become (especially if unnaturally placed) so cold that the bees could not touch them, and then the saccharine matters in their fluids being exhausted, they *had to draw upon their own muscular tissues, to work them into material which should be heat-producing.* That was to say, *the bee had now to oxidize herself, and for the present was converted into a carnivorous creature, having to devour her own body!* Carnivorous animals in confinement receiving only tissue-forming foods, are always in a condition of unrest, pacing their dens, and in this seem only to be following an instinct by which muscular tissue may be retrograded until it becomes material for oxidation. A portion of the tissues remained which could not be got rid of thus. This must pass away through the bowels. A large quantity of phosphates and sulphates passes off into the bowels, and to these the urinary secretions are added. But while the bee was being loaded in this way another unhappy circumstance was going on—the integuments of the bee were being reduced in weight, so it became lighter and weaker; yet the bowels were getting so loaded that when the bee tried to fly it had a greater amount to carry than if it had been properly fed. Some people said bees were accustomed to hybernate, and others said they were not. The truth seemed to lie between these statements. When without broods and with the thermometer standing constantly at about 40° they hybernated, but with a higher or lower temperature they increased in activity. He had been speaking of wintering bees as though no brood were present. If brood were present it would be necessary to keep the temperature up, especially if it were near the time of hatching. To sum up, he inquired, what were the causes of abdominal distension, and briefly reviewed his foregoing remarks. The main causes were worry on the one hand, and starvation on the other. Some people said their bees were not starved for they had found honey in the hives, but they forgot that the bees might not have been able to get at the honey. How was abdominal distension to be prevented? Much might be done by keeping the hives dry without and properly ventilating them. Keeping the bees numerous, and screening them from loss of temperature (which meant loss of honey) and exhaustion of bee life. The twin-hive he felt would much help, and Mr. Cowan's excellent plan of confining the bees to but few combs, and those well stored.

The Chairman said there was no doubt about the interest of the question, and, certainly, Mr. Cheshire had placed the matter before them in such a way that no one could fail to have been interested. Might he ask if the cure for the whole came under the word 'ventilate'?

Mr. Hunter said he could not go quite so far as Mr. Cheshire as to the effect the cold has upon bees, and he had made an experiment during the recent long and severe winter. His hives were Mr. Cheshire's Crystal Palace hives, and at the beginning of the winter, in October, he thought he would try how far the bees could bear the cold. He took out all but four or five combs, leaving a broad empty space at one end, and the entrance as widely open as possible. When he examined them in February, he found the hives that had been closed up were dead, while one hive, and the most unprotected, was alive. Therefore, the cold did not have the effect upon bees that Mr. Cheshire thought.

Mr. Cheshire: I did not intend to say the cold was fatal.

The Chairman: Injurious—that is what Mr. Cheshire said.

Mr. Lyon said, as to putting two stocks in one hive, he had tried it during the past winter. Just after the very long frost in the early part of February, he opened the double hive and found brood on each side of the division. The two stocks had mutually kept each other warm. He could fully confirm that idea from actual experience.

Captain Campbell: What do you consider the best temperature to keep hives at during the winter?

Mr. Hunter said he had always previously found brood, but this year there was not a particle of brood in twelve hives.

Mr. Baldwin said as late as November in last year he went to Abbey Wood and purchased ten lots of bees for driving, and he also purchased some empty comb from a farmer. Being so late in the year, he had not properly-constructed hives, but they were all united, having two or three lots, but one particular hive had only two lots. The temporary hives he used were the inside of double-walled hives. In one of the temporary hives he found in January brood in three combs. This occurred to him as rather extraordinary; he had generally found brood on each side of the comb, but this time it was not so. He examined two of the permanent hives and found brood in one but not in the other, and the same thing occurred in the case of two of the temporary hives. He thought the fact might be attributed to the difference in the age of the bees, and, perhaps, not to any advantage or disadvantage of the respective hives.

Mr. Abbott said he could not follow Mr. Cheshire through all his scientific research; but it appeared to him singular that bees, having been starved, should accumulate so much abdominal mucus as to cause them apparently to burst. That appeared to him extraordinary, and certainly not in accordance with experience. He did admit that one of the great causes of dysentery in hives—more particularly in winter—was loss of heat, occasioned by the passage of air round the ends of the frames, and he had suggested many times in the *Bee Journal* the insertion of slips of wood between frame ends to prevent circulation and loss of heat in this way. They very often had it put before them that bees in straw skeps lived better in winter than they did in bar-frame hives, which he considered to be owing to the combs being so built down the sides of skeps as to prevent the air escaping round them. Speaking of the double-walled hives, he said the bees were practically in a well, and the sun might shine for hours before it would affect the inside, except through outer temperature; whereas, in the case of the single-walled hives, the heat of the sun penetrated through in a very short time, and so warmed up the whole of the interior of the hive, giving the bees an opportunity of moving about, transposing and shifting their quarters, and getting

their nest properly charged with honey, so preventing the necessity for that wear and tear of tissue which Mr. Cheshire had described. As regarded the construction of hives, he believed the double-walled ones were better than single-walled hives, provided one of the walls were made of glass, which would prevent the loss of heat, while every gleam of sunshine would have due effect upon the interior. Of course, in summer, when the heat was intense, the hive could be turned round, so that the sun would not play upon the glass.

The Chairman said he had found square hives made of wood fatal in winter, while with hives made of straw he had never lost a stock.

Mr. Abbott said that was not his experience, and since the introduction of the quilt he had never had a stock of bees which had been afflicted with dysentery, except from extraordinary causes.

Mr. Cheshire: Dysentery I carefully avoided using; dysentery seems to be the fermentive stage of waste products inflating the abdomen.

Rev. G. Raynor: Abdominal distension always ends in dysentery.

The Chairman said this year he had inserted an empty glass over the hole that was always filled with moisture, but the hives were kept perfectly dry.

Mr. Cowan said, some years ago when hives suffered so much from dysentery he knew nothing about ventilation. And another thing, he did not know how to prepare bees for winter. That was a great point to be considered. He agreed with Mr. Cheshire as to the production of heat by the consumption of honey, and likewise as to nitrogenous food, and the thing was to devise a method of keeping bees as nearly as possible at a certain temperature. The first point was to have the bees strong in autumn. Many hives could not pass through the winter because of the limited number of bees. The next point was to consider the best means of ventilation. Certain gases were given off, and unless the hives were well ventilated the bees consumed these gases. This year he had tried a plan of his own, the idea being suggested by the Gordon fire grate. The fresh air was drawn in, and passing through a warming chamber was brought to a certain temperature, and it was reckoned that the whole of the air in the apartment was changed in from 30 to 60 minutes. In a hive the quantity of carbonic acid gas given off from consumption of sugar or honey was such that if an ounce of honey were consumed in a day, the hive would require to be ventilated every quarter of an hour. As a matter of fact, bees did not consume an ounce of honey a-day. When the outside temperature was forty the temperature of a cluster of bees should be sixty-five, and it might be supposed that the hive would require to be ventilated every hour. To maintain that temperature he contracted the sides of the hives to three, four, or five frames. To get rid of the gases he had had a little tin box, about an inch square, made, from which a tube passes to the top of the hive and branched off to the two extreme ends, the ends of the tube being perforated. At the bottom of the square tin box he had another tube which passed out at the bottom of the hive, he placed this box in a frame in the centre of the hive and affixed combs on each side, compelling the bees to form the cluster round the box. By that means the temperature was kept up to within 10° of the heat of a cluster throughout the winter. From 55° to 65° had been the temperature of his hives through the winter. To get rid of the gases he had a funnel to within an inch of the top of the hive; the top of the hive was closed, but free air came in with the foul air, which escaped through the openings round the hive. The lighter gases would pass up the funnel by the heat caused by the cluster round the funnel. In that way he had been able to keep up the temperature of the only hive in which he had tried the plan, and this hive was one of the strongest he had. Nearly all the combs had brood in them which was a proof that ventilation, and warm-air ventilation, was necessary.

The Chairman: Don't they require a good deal of food in keeping them up to that?

Mr. Cowan did not think so. As to double-walled hives he certainly approved of them.

Mr. Peel said he could confirm what Mr. Cowan had said as to the temperature of hives: his bees being kept in his study were always maintained at an even temperature. Mention had been made as to the comparative merits of the double and single-walled hives. He used Cheshire's hives—some copies made by a local carpenter—and he also used Woodbury's. He had found the double-walled hives answer very well; they seemed to keep the heat out in summer-time, and to keep it in in winter time. The hives made by a local carpenter as a pattern of Cheshire's were not double-walled. The fact was he tapped the pattern hive, and concluded the hollowness was owing to the maker being short of wood, and he made his walls about three inches thick. He was well satisfied with double-walled hives, and should continue to use them.

Mr. Glennie spoke in favour of the American chaff-pillow after an experience of two years, and said his bees did not suffer from dysentery, neither did he lose a hive.

Rev. G. Raynor: Do you place any weight on the pillows?

Mr. Glennie: Oh, no! My hives are in a house.

Mr. Holloway confirmed Mr. Cheshire's remarks upon the chemical and physiological part of the question; as far as he was able to follow, they seemed to him irresistible. He should like to ask Mr. Cheshire what relation the 40° of temperature bore to the outside air, and also whether he considered that the best medium temperature at which to winter bees?

Mr. Cheshire then briefly replied to the questions that had been put. He was obliged to Mr. Lyon for his testimony as to the twin hives. In regard to temperature the Americans had tried all sorts of plans, and had come to the conclusion that bees did best at about 40°. If it were higher than that they were likely to become restless, but if lower they would have to exert themselves in order to maintain the temperature necessary to the continuance of vital functions. In reference to Mr. Baldwin's remarks, he might say they had neglected the non-conductivity of the comb. The comb had been contrived by the Creator in His wisdom for a great number of purposes; but if the whole and sole object had been for the purpose of making it non-conductive, it could not have been better for that end, and it was the best protection from the external cold. So far as that was concerned, the straw hive up to the present must have the best of them; no bar-hive in existence protected the bees from cold so well as the straw skep. With regard to Mr. Abbott's query, he specially avoided the use of the word 'dysentery' for the causes of abdominal distension. He knew this led them up to dysentery, but anything that contributed to the distension of the bowels of the bees contributed to dysentery. Mr. Abbott said the bees of a double-walled hive were as if down a well. He was sorry to disagree on that point. He thought it was a great mistake to allow the temperature of a hive to be raised by every gleam of sunshine. He should like to suggest, and Mr. Cowan's remarks brought that before them, that it was better in wintering hives not to have a number of combs containing scarcely any honey. He could quite endorse what had been said about chaff-pillows.

A vote of thanks to Mr. Cheshire, and also to the reverend chairman, brought the interesting proceedings to a close. The last-named gentleman, in acknowledging, referred to the advisability of constructing cheap hives, in order that the cottager population might enter more largely into bee-keeping. Mr. Glennie and Mr. Lyon each explained a simple mode of procuring hives for a

mere trifle, which, it is hoped, they will enlarge upon hereafter.

Not the least interesting feature in connexion with the Conversazione was the display by the Lincolnshire Association of a collection of blooms of spring flowers frequented by bees, sent by W. Ingram, Esq., of Belvoir Castle Gardens. They were all grown in the open ground, and gathered on the morning of that day (16th April). Some doubt was expressed by gentlemen present that they were all out-door blooms, but it is easy to dispose of their objection by quoting Mr. Ingram's words in a letter to the Secretary. Writing on the day previous, he says, 'Should more snow fall it will be impossible to collect the flowers; at present we are covered' (*i.e.* with snow). This therefore shows what may easily be done by all who have gardens, not only in adding to the charm of what is often at this season of the year a dreary waste, but also in affording very material assistance to our industrious little friends in such an inclement spring as the present.

Flowers frequented by bees in March and April gathered from the open ground 16th April, 1879.

Erica carnea, Arabis albida, Aubrietia grandiflora, Saxifraga lingulata, Forsythia suspensa, Scilla Siberica, Fumario purpurea, Narcissus pseudo Narcissus, Lonicera fragrantissima (Winter honeysuckle), Jasminum nudiflorum, Anemone Appennina blenda, Cardamine rotundifolia, Pyrus Japonica, Doronicum Austriacum, Andromeda floribunda, Primrose, Iris reticulata, Myosotis dissitiflora, Viola Victoria Regina, Hardy ditto. The Winter honeysuckle is found to be one of the earliest blooms for bees, and is always much frequented.

Mr. C. N. Abbott (Editor) exhibited one of the bar-frame feeders of Scotch invention, but to whom the credit for the ingenuity displayed may be due seems from communications in the *Journal* to be a disputed point. A good deal of interest was created, but the opinion prevailed that the large cooling surface of tin, backed by the cold syrup, though there is no real reason why it should be given cold, would spoil its value in cold weather.

Regarding the '*bee flora*' exhibited, there is reason to hope that Mr. Ingram may be induced, either at the Lincolnshire or at one of the London gatherings, to give a reading on the bee flowers and plants of Great Britain. From a florist and botanist so celebrated, a simple list would be of incredible value, and the full description worthy of a first place in the annals of bee-culture. All bee-keepers will hope and hunger for such a treat as they hope and *hope* for fine weather. Lincolnshire was represented at the Conversazione by Mr. Godfrey and Mr. Holloway, who are members, and by Mr. Bolton, who came as a deeply-interested friend.

The adjourned meeting of the Committee was held on Wednesday, the 23rd April, when several additions were made to the Prize Schedule (*see* Clauses 31–33, p. 22). The judges for the Show were nominated; the names will be published when their replies have been received.

HERTFORDSHIRE BEE-KEEPERS' ASSOCIATION.

Meeting at Berkhamstead.

Under the auspices of this newly-formed association, a public meeting was held in the Town Hall, Berkhamstead, on Saturday, March 22nd, under the presidency of the Marquis of Hamilton, M.P. There was a very large attendance, the room being nearly full. The Chairman was supported on the platform by T. Curtis, Esq., Rev. H. R. Peel (Abbot's Hill), Rev. E. Bartrum, R. A. Brook, Esq. (Northchurch), Rev. H. W. Hodgson (King's Langley), and Mr. F. Cheshire, A.C.P., F.S.A.

The Chairman said that although he was connected with the Association he had no bees of his own, and under those circumstances it would be presumptuous of him to state that he had a knowledge of bee-keeping. Unfortunately the art of bee-keeping in this country was at a very low ebb. They knew more about the subject in Scotland, and in America they took the shine out of us altogether. Upon the Continent there was more knowledge upon the subject than in England. In Russia there were a good number of hives, and honey and wax were extensively used. In Germany the subject was thought so important by the State that the National School teachers before they could receive a certificate of the State were obliged to pass an examination in the art of bee-keeping. In consequence of the knowledge of this art being at so low an ebb in England, a number of gentlemen had formed a central association in London, and branch societies in connexion with it had been started in the provinces. Last year the Hertfordshire Association was formed, mainly, he believed, through the efforts of the Rev. E. Bartrum and the Rev. H. R. Peel, and they had the names of the chief gentlemen in the county connected with it. Lord Verulam had consented to be its president; and Lord Brownlow, the Earl of Clarendon, Lord Essex, the Bishop of St. Albans, Lord Ebury, Lord Chesham, and other gentlemen, had consented to be vice-presidents; and they wished to enlist as many members as possible to join their society. It might be said, 'What is the use of joining your society? I can keep bees without belonging to the society.' He (Lord Hamilton) was now addressing himself to working men, and he noted three advantages to be derived from their being connected with it. First, the privilege of competing at all shows held by the Association at a lower scale of entry fees than would be required from non-members; second, the chance of winning a hive of the most approved pattern at the drawing, which it was proposed to hold at the annual general meeting; thirdly, the opportunity of disposing of their surplus honey at the annual honey fair, which would be held by the Association in some central town in Hertfordshire, and which would be open to none but members. The subscription was not a large one. Mr. Peel had told him that it varied from 2*s.* 6*d.* to one guinea. At present there were only seventy-six members connected with it, and the income was only about 33*l.*; but he felt convinced that by holding such meetings as those throughout Hertfordshire, which it was intended to do, that if they met again another year Mr. Peel, the honorary secretary, would be able to give a better account of the number of members and the income. It seemed to him (the speaker) a great pity that Berkhamstead was not a great bee-keeping locality, where everyone had his garden within his own grounds, and where everyone, from the respected rector downwards, was a cultivator and lover of flowers. Surely bees should be cultivated. His lordship concluded his remarks with his best wishes for the success of that meeting, hoping that many would be induced to join the society.

The Rev. H. R. Peel, hon. sec. of the Association, said he thought that they ought to be greatly encouraged at the numbers present at that meeting. At the exhibition of the Berkhamstead and Northchurch Cottage Garden Society last year one gentleman had said to him, 'What is your Association doing?' He told that gentleman that they meant to do what they could in the summer by attending flower-shows with the tent, and in winter to form their Association. They had done this. They had held a meeting, and Lord Verulam had consented to be their president, and their chairman (Lord Hamilton) had also very kindly promised his support. The Bishop had been asked to join, and he had suggested that the name should be altered from the 'West Hertfordshire Association' to the 'Hertfordshire Association,' a suggestion which had been adopted. Now they had commenced to hold public meetings in the county. They held one at Baldock on the previous Thursday and made a good beginning; and on the following Saturday one was to be held at St. Albans, and others were to follow. When summer came round

again they would be prepared to pitch their tent at the shows of horticultural and cottage garden societies wherever they would be received, and offer prizes for the best supers of honey. They hoped to improve the cottager pecuniarily and morally; to raise his better half—not his wife—but his moral and spiritual state. From the study of the bee he might be led to study other insects, and to study the flowers, and thus be led on to think of the Creator of insects and flowers, leading him from the objects in nature to Nature's God. They thought they might also do something in a sanitary way to improve the cottager. If a man kept bees he must keep himself clean and his clothes must be well brushed, or the bees would find it out. A cottager would not be satisfied with keeping bees, he would want the bees to keep him, and this they would do to some extent if properly cared for. He (Mr. Peel) knew a cottager in an adjoining county whose bees paid his rent and also a heavy doctor's bill for his wife who had been ill for a long time. Another object of the Association was to teach humanity to the bee. They wished to put a stop to the cruel practice of killing them. They wished likewise to teach the cottager how to produce honey in good quality and in saleable and portable form. The Americans sent it to this country in small glass supers [a sample of which the speaker exhibited]. There were no less than eighty tons of honey sent from America last October, and 100 tons in January, and ninety in February. If the English did not exert themselves they would soon be beaten out of the market. He could assure them that neither the American nor the French honey could compete with English honey. The next step in which they wished to assist the cottager was where to dispose of his honey when it was produced. At their annual show it was proposed to hold a honey fair open to none but members, for disposing of their honey. At Lincoln this had been tried, and every bit of honey offered for sale was disposed of, and they hoped to do something more in this respect. They had been to the best confectioners, grocers, and fruiterers in the county, and asked them to become agents for the sale of the honey produced by members of the Hertfordshire Association and none other; and they had promised to do so. Any member who had honey to dispose of would simply communicate with the assistant secretaries, Mr. Huckle or Mr. Gulston, and they would find a ready market for it. This was the programme they were attempting to carry out. They were, however, quite open to any suggestions. Mr. Peel concluded by asking the ladies present to do all they could to get cottagers to join the Association and help them to get a good market for their honey.

Mr. Frank Cheshire then gave an interesting address upon 'The Bee—the Friend of the Cottager and Gardener,' illustrated by large diagrams.

A vote of thanks was proposed to the Chairman, which was carried with acclamation.

Meeting at St. Albans.

Another meeting of the Association took place in the Assembly Rooms, St. Albans on Saturday afternoon, March 29th. There were present Viscount Grimston, Rev. H. R. Peel (Secretary), Rev. Dr. Griffith, Rev. H. Smith, Rev. J. Hargrove, Mr. T. C. Part, the Mayor of St. Albans (Mr. J. Fisk), Mr. G. Checkland, Mr. G. N. Marten, Mr. F. Cheshire, and several other gentlemen of the neighbourhood, as well as a good number of ladies.

Viscount Grimston took the chair, and said he was sorry that his father, the Earl of Verulam, who was to have presided over the meeting, was unable to attend; and he had had the honour done to him by Mr. Herbert Peel of being asked to preside in his stead. One of the objects of the meeting that afternoon was to promote the scientific culture of bees, not by the methods which were now pursued and inculcated, but by other means; for it had been proved that it was possible to produce larger quantities of honey than were obtained by the old system. Another point which the Association aimed at was the encouragement of greater humanity in the keeping of bees, and the necessity of this all this must recognise. His lordship called on Mr. Peel to explain the aims and objects of the society.

The Rev. H. R. Peel, after having given a most interesting account of the origin of bee-keeping, said that very little, however, was known about bee-keeping and hives until Huber, a blind Swiss, who, depending upon his bees for a living, started the plan of hiving. The speaker believed that did not commence till he had lost his sight. Among the Germans the system gradually extended itself, and the first association of bee-keepers was formed under the auspices of the Elector of Saxony. The Germans had kept up the practice, and now they made it part of their national education. The French derived their knowledge of the management of bees also from Huber, and the Americans appeared to have done the same. The latter were now teaching us many lessons. In different States associations had been formed, and they had made great advances; while he was sorry to say that the English public, cottager, and labourer, had been standing quite still in the art. It was only in 1874 that anything was done in the way of association at all. In that year a number of gentlemen associated themselves together and they determined to see what could be done. They held a show at the Crystal Palace, when all the newest hives and improvements were exhibited. They also drew up a code of rules for the Association, and presented to themselves certain definite objects. One of the aims was the formation of provincial, or county societies, in affiliation with the British Bee-keepers' as a central association. Of that he (Mr. Peel) happened to be secretary, as well as of the Hertfordshire Association. The object which the members proposed to themselves might be divided into three heads. The Association was really a philanthropic one, it being for the improvement of bee-keepers; it was to benefit the English cottager that their efforts were mainly directed. They wished him to produce his honey in a more intelligent and more humane way; they wished him to produce it in a simple form, meaning in a portable form, and so that it could be carried away. It was formerly the plan to produce honey in large supers of 80lbs. in weight, and it was very difficult to get it when it was in such large masses; but he regarded as a model of simplicity, and of a desirable size, a small American glass super, which he exhibited to the audience. That showed what the Americans could do. In spite of the distance from England, there were certain merchants in America who bought up all the honey in California and other States, they paid the expense of freightage to England, and then employed agents in London who sold it to wholesale dealers at a sufficient profit to cover all the cost and trouble they had been at. Now if the Americans could do this, why could not people in this country do it also? If the Englishman could obtain 1*s.* per pound for his honey he would do very well; and if he could get 1*s.* 3*d.* of course he would do still better, and he saw no reason why he should not aim at 1*s.* 6*d.* if he produced it in as acceptable a form as the Americans did—he meant in small glass supers containing about 2lbs. each. The Hertfordshire Association hoped to induce the cottager to obtain his honey in small quantities, but the great aim was to help him to sell his honey, because it was sometimes said, 'It is no use to procure it in large masses if we cannot sell it;' and the society were inaugurating a system by which they hoped, after a little time, to enable him to get rid of it. It was proposed, when the honey harvest was finished, about the month of August, to have in each town—in St. Albans, Rickmansworth, Watford, Berkhamstead, &c.—some tradesmen to whom a certificate would be given as being the only authorized persons who sold the honey of the members of

the Hertfordshire Association. The foreign honey had been submitted to able analysts in Glasgow and London, and while they had not been able to prove that the American honey was adulterated, they, one and all, believed that there was no better honey anywhere than could be produced in Hertfordshire, from Hertfordshire flowers, by Hertfordshire bees belonging to Hertfordshire men. If the ladies and gentlemen would only support the Association by becoming members of it and by subscribing to its funds, the work would progress. The inauguration of such an organization necessarily involved a great deal of expense, because the meetings had to be held and literature about bee-keeping had to be distributed; and in the summer there was the additional expense of encouraging cottagers at the flower shows which were held, by offering prizes as a stimulus to the work. Therefore for the membership and subscriptions of any ladies and gentlemen now present, the committee would be grateful. There was, too, another way in which ladies especially could assist—by introducing honey into the kitchens, and by making it an article of consumption at the breakfast-table. Doctors sometimes recommend it to their patients, and if the public would encourage the Association, he had no doubt it would do a great deal of good. It would preserve and revive a national industry at present in not a good condition, and would prevent foreigners sending their inferior articles to this country and swamping the market which ought to be open to all British people.

Mr. Frank Cheshire then gave an address on 'The Economy of the Bee-hive,' with the aid of some well-executed diagrams.

Rev. H. R. Peel said there had been a meeting at Baldock on Thursday week, and the people had heard all that the audience had heard that afternoon; and at the end a request was made to him, as being secretary of the Hertfordshire Association, that he should present an extractor to Baldock, to be kept at the house of the rector (the Rev. Canon Kewley), and that all the members of the Association in that part might have access to. Mr. Peel thought that was a very legitimate use to make of the funds of the Association, and he should have great pleasure, if indeed Lord Grimston would allow him to do so, in sending an extractor to Gorhambury, for all members of the organization in this neighbourhood. He thought in that way cottagers would be assisted in realizing the 3*l.* per hive which has been spoken of by Mr. Cheshire.

Mr. G. N. Marten inquired if Mr. Peel could not send a bar-frame hive at the same time, because there were many people in a village like Sandridge who never heard of the hive, except by name. If, however, one could be seen, not only a real carpenter, but also an amateur carpenter, might make such a hive.

Rev. H. R. Peel said he thought the second suggestion such a good one that he would send the best bar-frame he could possibly get, as well as the extractor. Now was the time of year to commence bee-keeping, and bees were at this time generally obtained very easily for the cottager.

The meeting concluded by a hearty vote of thanks being proposed to the noble chairman, which was carried by acclamation.

Meetings in connexion with the Hertfordshire Bee-keepers' Association were also held at Rickmansworth, on Friday, April 18, at three o'clock; Abbenham, same day, at eight o'clock; Gt. Gaddesden, Monday, April 21; Dunstable, Tuesday, April 22; Redbourn, Wednesday, April 23; King's Langley, Thursday, April 24; Hertford, Saturday, April 26, at all of which there were large and enthusiastic audiences; and we may presume that, at least in Hertfordshire, the science of Bee-keeping has been effectually ventilated.

At a meeting of the Provisional Committee of the Hertfordshire Bee-keepers' Association, held at the Shire Hall, Hertford, on Saturday, April 26th, the Hon. Baron Dimsdale in the chair, it was unanimously resolved to hold two shows of bees, hives, and honey, &c., during the ensuing season—the first to take place at Hertford, in connexion with the Flower and Vegetable Show to be held at that town in the month of July, and the second at Hemel Hempstead on October 1st and 2nd, in connexion with the Poultry Show to be held at that place. Schedule of prizes, &c., will be ready shortly. It was also decided to send the Bee Tent to as many cottage garden and horticultural shows in various parts of the county as possible, and the Secretary was requested to communicate with the secretaries of such societies as early as possible.

ON THE QUEEN-BEE,

With Especial Reference to the Fertilisation of her Eggs.

By John Hunter.

(*Reprinted from the Journal of the Quekett Microscopical Club.*)

The life-history, functions, and attributes of the hive bee, have for more than 2000 years engaged the attention of naturalists and other men of science. Apiarian students have numbered in their ranks men whose pre-eminent learning has left their names as land-marks to posterity, and who will never be forgotten while history exists. Among the ancient philosophers who have studied and written upon the bee, I may mention Virgil, who devoted the whole of his fourth Georgic to the subject; Cicero, Pliny, Aristomachus, Philiscus, Columella and Celsus; and within the present century we have the great naturalist, Swammerdam; the mathematician, Maraldi; Réaumur, the inventor of the thermometer which bears his name; my illustrious namesake, John Hunter, the anatomist; and Huber, of Genoa, whose total blindness did not prevent his giving to the world many facts in the bee's life-history which were before unexpected. Without approaching nearer to our own time, the above array of brilliant names as example will sufficiently excuse any amount of attention we lesser lights may give to an insect so small, but yet of great and increasing service to mankind.

When so many learned men have been before us, it may be assumed that the subject is well worn; but the fact is, that, from the imperfect means of observation enjoyed until lately, mainly by the misconstruction of hives, facts have been so mixed up with surmises and wrong deductions drawn, that it became a difficult task to separate the true from the false. A colony of bees consists of workers which may number 50,000 or more, in summer a few hundred drones, and *one* queen, who is the only individual in all this vast assembly capable of propagating the species.

At the present time (the month of October) we may safely assume that under normal circumstances the queen in any hive is the mother of every other bee there. The drones are males, and what I have just said will, of course, have informed you that the queen is the female; and the question naturally arises, What are the workers? They used to be styled 'neuters, but they are not so, they also, as well as the queen, are females, differing in the fact that their sexual organs are not fully developed. Drones, workers, and queens, of course, are all bred primarily from eggs, and those gentlemen who have made no special acquaintance with bee history, will perhaps feel surprised when I say that the eggs which produced the queen and the workers were, when deposited by the mother bee, identically of the same kind, and either could at the will of the bees, who may even be influenced by the will of the bee-master, by skilfully directing them, as his agents, be made to give birth to either queens or workers—nay, I will even go further, and say, that I believe it possible that the skilful experimentalist could so direct that some

selected eggs, which, left to themselves, would give eventual birth to drones, should be made to produce drones, workers, or queens at will. To elucidate this problem, I must beg your attention while I trace the history of a bee, not only from the deposition of the egg, but from the growth of the latter in the ovary of the mother, and it will also involve an explanation of the theory of Parthenogenesis.

On dissection of a queen, we find within her abdomen a pair of ovaries, as on the diagram to which I direct your attention, as also to the preparation of these organs under the microscope. We see each ovary consist of a great number of tubes, containing eggs in various stages of development, and all these tubes lead to a right or left duct, which again unites into one main channel, down which the eggs pass. At the side of this latter duct we find a little globular sac opening into the oviduct; this sac is called the spermatheca, and is filled, when the queen has had intercourse with the male, with the usual whitish seminal fluid, containing countless thousands of spermatozoa in full activity.

I have here an impregnated queen, from which I will show you it is easy to dissect out the spermatheca, and verify its contents to be as I state. Seeing these active bodies all wriggling and twisting like so many eels, it is hard to believe they are not animalcules, as was long thought. To return to the eggs: when arrived at maturity they glide down the oviduct from either ovary, and on passing the opening of the spermatheca, receive one or more spermatozoa, which, penetrating the egg's substance, causes the birth of a worker larva; but it may so happen that the egg in its passage, does not, either from volition, or inability of the queen, receive impregnation, in this case it does not perish or addle, but gives birth to a *drone* larva, and it has been conclusively proved that the act of fertilisation or not determines the sex of the future bee. The egg being fertilised and deposited, it hatches in about three days, and the young larva receives the careful attention of the worker-bees, who feed it with appropriate food, and in due time it passes to the pupa state, on the twenty-first day becoming a worker-bee: but the same egg that produced the worker in twenty-one days could, had the bees been so minded, have been bred up to a queen in sixteen days. The bees only rear queens when necessity calls for them, either from loss of their old monarch or apprehended swarming. If I remove the queen from a hive, the first of these contingencies occurs, and after a period of a few hours' commotion, the bees select certain of the worker-eggs, or even young larvæ, two or three days old, the cell is enlarged to five or six times its capacity, a superabundance of totally different food supplied, and the result is that, in five less days than would have been required for a worker, a queen is hatched. The marvel is inexplicable, how a mere change and greater abundance of food, and a more roomy lodging, should so transform the internal and external organs of any living creature. The case is without a parallel in all the animal creation—it is not a mere superficial change that has been effected, but one that penetrates far below form and structure, to the very fountain of life itself. It is a transformation alike of function, of structure, and of instinct. On the birth of a queen, her wings are limp, and hairs clotted with moisture; but she is in full activity, the workers assist in her release from the wax-cell in which her transformation takes place, but they pay very little or no attention to her so long as she remains a virgin.

(*To be continued.*)

One of our esteemed bee friends, who has just started a Root's Comb Foundation Machine, received an order the other day as follows:—"'Please *root* me out the *foundation*, as I want it built upon"—which I think rather pithy.—Yours, SUPER HONEY.'

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be fully and faithfully recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

THE LONG HIVE.

Now that the time is come round for bee-keepers to try hives, I will endeavour to give a description of my long hive; but in doing so I'll try and cut it as short as I can, yet make myself clear. I tried this hive last year with great success, and am making several improvements for this year, which I shall add. It is 2 feet 6 inches long, 18¾ inches broad, and 12 inches high, outside measurement. I use Woodbury frames, fixed floor-boards, dead air-space at back and front, two dividing-boards, and about 2 inches of spare room over the frames; a simple roof and stand completed my hive for 1879. The essential point in it is the entrance, which must be in the centre of the hive, and measures 8 in. by ¾ in. with slides.

Now, to make myself clear, I will begin with a hive in the spring, and follow its working out till winter, keeping in view one I worked myself last year.

The bees wintered in ten combs. On my first examination I took five away (end of February), and put one of the remaining five (an empty one) in the centre of the brood, and so kept on dividing the brood till I got them up to a strong stock on nine combs (of course, feeding liberally). Then I sorted the combs, and put all the fresh laid-in ones by themselves, and the remaining ones on the other side; and in between the two I put my tenth frame with queen zinc excluder, and also a frame of foundation in the centre of the five, making six enclosed on one side; then I put two frames with sections at the other end of the hive, and closed all up by the division-boards. Now it will be seen why I have my entrance in the middle of the hive; as the queen is kept to a certain number of frames, and cannot swarm away, or lay in any combs except those in her prison, the other combs which are placed opposite the entrance I call a hatching department, and the sections on the other side of them I have for building and storing honey-comb. Now I leave this hive for eleven or twelve days; then I open it, give the queen fresh laying comb, put the rest to hatch out, then put the unfinished honey-comb on top, take out any that are filled, and shut it up again for another eleven or twelve days. I very often open it, to see if all goes on well, or to take a couple of combs to make a nucleus, supplying their place with foundation; but it can be left for eleven days with impunity. When I give the queen fresh laying comb, of course, I have to give her the combs which were in the hatching department; but as fast as she can lay her two or

three thousand eggs, so will the young bees be hatching out. And when I put supers on (sections) I put excluding zinc over the queen's five or six frames; the advantages of this hive and system are, that you are always safe from swarming, and if you have other business to attend to you need not often look at your hive—only every eleven days, and that in the height of the season.

There are plenty of small details; but these I cannot enter into now. I take one swarm from each hive every year, and I raise a queen beforehand; but there is one thing essential to this hive, and I might say to all hives, and that is, comb foundation, and it must be of the best quality, well made and full depth, as without it you cannot get your combs made so as to have them all interchangeable. Mr. Raitt of Blairgowrie supplies the very thing, and at a modest price, worth double the amount to all bee-keepers. I cannot speak or recommend it too highly; I have combs now full of brood worked out of the foundation this year. Mr. Raitt deserves the greatest thanks from all bee-keepers for importing the American comb-foundation machines, as no other foundation is equal to the machine-made. — A KILKENNY BEE-KEEPER, *April 21st*, 1879.

THE BAR-FRAME FEEDER.

You kindly made my request known, but in such a way that I may be permitted to add a little more, and say, that instead of 'receiving the first idea from Mr. Paterson,' I was not aware that ever he had the 'idea' in his head; certainly it never came out in the form of a bar-frame feeder until I gave it to him.

No more need be said on this head, as I sent some months ago for insertion in the *Journal* a statement of fact regarding this controversy, to be published alongside Mr. Paterson's; but he was not 'game.'—ANGUS CAMERON, *Blair Athol*, *April 22nd*, 1879.

QUEEN-FERTILISATION.

Can you or any of your correspondents give any further information as to impregnation of queen-bees than is to be gathered from the published works on bees? All authors seem to insist that they must, and can only be, fertilised in the open air. It is, however, a puzzle to thoughtful novices, who are all more or less wanting in faith.

In your leaflet *Bees* you state, page 4, that the virgin queen is said to take a quarter of an hour's flight for the purpose—to meet strange drones. This can hardly be with the first-hatched queen of the season, or where there is no other hive within two or three miles. On the other hand, in the height of the season, queens issuing forth for the purpose would be immediately so beset with drones the fact would be observed by every bee-keeper.

My impression is that, unlike the wasp-queens, about which there is no doubt, the impregnation of the queen-bees must take place in the hives very soon after they are hatched, and that it is usually, or always, in the dark, and so prevents observation. Any light on the subject will be gratefully welcomed.—F. P., *15th April*, 1879.

[Experienced bee-keepers, as well as 'thoughtful novices,' desire more light on the above subject; and it would give intense delight to the bee-keeping world if any reliable means could be devised by which fertilisation could be ensured within the hive, or in any other place in which it could be controlled. Our correspondent's suggestion is directly in opposition to all experience. If fertilisation took place within the hive, races of bees would, as a rule, remain pure, which is not the case, and in-and-in-breeding would be carried on to the fullest extent. Thousands of bee-keepers have watched their young queens depart on their wedding-trip, and have seen them return with proofs of their marriage having taken place; so there cannot be a doubt as to the fact that the wedding takes place abroad. Coupling the foregoing with the fact that young queens of either Ligurian or English extraction each mate with the drones of the other race, if possible, and that crossing in that way has been known to occur when the varieties have been many miles apart, it may safely be concluded that our correspondent's theory has no foundation in fact.—ED.]

ITEMS FROM AMERICA.

In the January number of the *B. B. J.* (Query 289) R. D. Barnes asks about the new *Bee-keeper's Text-book*, by A. J. King. By sending *3s. 2d.*, or rather its equivalent, by P.O.O., King will forward it by mail. The *Manual of the Apiary*, by Professor Cook, is, I think, vastly more useful. I sent some copies of the first edition to England for distribution some three years ago, but am afraid it did no good.

I was very surprised at a gentleman's remarks at the Annual General Meeting of the British Bee-keepers' Association, but if he eats peppermint-drops and tallow, I think his opinion can have little weight with people of more refined taste. Honey in the comb is sold by every grocer, and in many fruit stores, at from 10*d.* to 1*s.* 0½*d.* per lb., and is as good-flavoured as English honey. Some Californian honey is said to be very sweet, but lacking in flavour.

Very few of our bee-keepers will use foundation in the surplus boxes, as the bees do not always thin it out. English bee-keepers had better beware lest they fall into that error. Several of your correspondents sneer at American bee-keepers, but I can assure you, from what I have seen in both countries, that American bee-keepers, as a rule, are far ahead of the English.

I kept bees in England for years, and would never have started again but for the improvements made here. I have now eight stocks. March 14th being warm, I examined one stock and found some brood in it. We have since had several snow storms, and the mercury down to 20°; but I have no fear of losing a stock, although I winter out-of-doors.

I presume you see the *American Bee Journal* and *Bee-keeper's Magazine*. I take both, and am expecting some very valuable practical information in the *Journal* from the *Yankee Doolittle*.

Can you tell me how many stocks the large bee-keepers in England have? I believe the largest in the United States has nearly three thousand.

The Secretary of the British Bee-keepers' Association made a very wise remark when he said, 'He thought it was not well to condemn the American importations without knowing whether the honey was adulterated or not.'

I wrote this letter thinking you would publish it—on reading it over, I think you may not.

I may say that I am not interested pecuniarily in any honey importation into England. I merely keep bees for pleasure.—C. H. H., *Providence, R. I.*

[The Hon. Secretary of the British Bee-keepers' Association purchased some of the highest brand of the honey in question, which he generously gave to various members that it might be compared at home, and on tasting it we were satisfied it could never take the place of English honey—it was quite nasty. We do not think there are many bee-keepers in England with more than a hundred stocks of bees. We take both the papers mentioned, and *Gleanings* also, and find profit in them all. We shall always be glad to hear from you.—Ed.]

BEE-KEEPING MADE EASY.

By a Cottager.

'A garden is itself a comfort.'

The rage being now for novelties amongst the bee-keeping world, it is hard for those living in an humble sphere of life, such as the writer, to remain unheard amongst the heath-clad hills of his native home: but still his practice may be, to a great extent, partaken of by those similarly situated. My apiary consists of two departments—one called the breeding department, and the honey the other. Both are separated by a hedge-row. All the swarms issuing from the parent skeps are placed inside a walk three feet wide, nicely sanded, and kept free from weeds. All my hives are placed on single pedestals, and at foot of each sprinkled with sawdust, and the inner rim with coarse salt, to prevent snails ever reaching the hives. I use no thatch or unsightly coverings, but all my covers are made of wood, and nicely painted, and look ornamental as well as useful: and I never saw either snail, mouse, or wax-moth, in any of my hives yet. Why a good many fail in bee-keeping is, because they are guided by calendars of operations contained in bee-books. They must print something in them, and every single book now published is behind the onward march of the times with regard to bee-keeping. If you want to succeed with your bees, you must let them alone: don't be always moving them about, cleaning floor-boards, &c. My best hive is one that wasn't stirred since autumn, 1876. It throws three swarms each summer without even casting a look at it. A good many would say, and very justly, 'Why do you be losing your time watching your swarms?' Well, adjoining my hives is a neat flower-garden and vegetable plot. I plant a lot of potatoes, onions, parsnips, &c., and these I cause to be weeded and thinned whilst watching the bees. My boy, four years of age, watched all my swarms last year, and not a single swarm ever left the garden. Of course, the housewife hived them shortly after the bees' raising the alarm; and I placed them upon permanent stand in the evening, when I return from my daily toil. The children go up to the very hives, the bees walk over them, and the boy above referred to hands mother the hive to hive them in; and not one of them received a single sting. 'Use makes master;' and I believe fear and constant stirring make a good many people get stung. Not one of my swarms ever left my garden yet. Of course, I anticipate the swarming very nearly by listening to the state of the hive after sundown. Bee books will tell you not to dress a hive with sugar and cream; but if a day or two after being hived comes wet, what are you to do? I always dress my hives, and find it suits well. I also, in early spring, plant about ten perches of a double row of borecole cabbages, for to go to seed, to furnish food for the bees, and these come in before the meadows are in blow. I sow a row of peas across the garden, and the bees always swarm in them, and nearly all the after-swarms alight where the first takes refuge. I have no such things as basins or bowls of water for bees, or feeding pans. The bees get any water required for their internal arrangements out of heads of cabbages and rhubarb growing up to the very hives.

(*To be continued.*)

TOP ENTRANCES TO HIVES.

I have often had an idea that there might be some advantage in wintering bees if the entrance was at top of hive instead of at bottom, and last year I altered two of my boxes so as to adapt them to that purpose; so I will send you the results, which, perhaps, may interest some of your readers. I would observe that last year was the worst but one I have experienced since I have been a bee-keeper. The bees find their way into the box through a long narrow opening in what would be a crown-board, just over the middle of the hive. The frames draw out at the back, a shutter, taking down for the purpose. There is also a floor-board draws out between the legs, not so wide as the inside of box by about 2 inches, so that the frames do not rest on the moveable part of the floor-board. There is provision made for taking out the floor-board and sliding in a drawer, in which may be placed sections, &c. My first swarm last year came off on the 30th of May; it was a medium swarm, and put in, say, No. 1 box, the entrance facing south-west; I was obliged to feed them to keep them alive. My second swarm came off on the 18th of June. This was a large swarm, and put in the other box, say No. 2, facing south-east. Nothing was done with these two stocks till the latter end of October, when I weighed them, having previously weighed the hives when empty. The contents of No. 1 were 14 lbs.; the contents of No. 2, 18 lbs. I decided to let them stand without feeding, so the latter end of November I took out the floor-boards—a very few dead bees there—replaced them, and covered the bottom part of the box up to the entrance with straw, binding it on with string. I then put a covering of straw over the top, leaving the entrance clear, binding that on with string, and left them for the winter. A few bees showed themselves the

last week in December, but they brought out no dead bees. It was not till about the 10th of February that I ventured to examine the bees; I then took off all the covering and took out the floor-boards. No. 1 had 80 dead bees there, No. 2 rather more than 100. I consider these are all the bees that have died in the hives since the frost first commenced. The floor-boards were perfectly dry and clean; there was not a single speck of dust on them, and nothing whatever but the few dead bees and the chiselliugs of the comb-cells; all was cleaned off with a feather, and perfectly sweet and dry. They are now, April 9th, looking promising, and young bees have made their appearance the last few days.

I have omitted to say when the hives were examined in February they were weighed. Contents of No. 1, 7 lbs.; No. 2, 11 lbs., so that each stock is reduced in weight just 7 lbs., or about ½ lb. to each per week. Began to feed regularly when March came, using the needle feeder—giving about 1 lb. sugar in syrup to each stock in ten days.

I certainly have been agreeably surprised, considering the winter we have had, to have found them in such good condition, and am inclined to think there are other advantages to be gained from the system.—P., *Warwick*.

PASTURAGE FOR BEES.—No. XI.

(*Continued from* p. 229.)

Fruit-trees.—Plum (*Prunus*), sloe, or blackthorn (*Prunus spinus*), wild cherry (*Prunus cerasus*), bird-cherry (*Prunus padus*), pear (*Pyrus communis*), apple (*Pyrus malus*), almond (*Amygdalus communis*), peach, apricot, nectarine, &c. All these fruit-trees yield a great quantity of beautiful and highly-flavoured honey, and when in bloom the bees are working from morning to night collecting the honey and pollen, and fertilising the bloom. We should have little fruit if it was not for the agency of bees. All good fruit-growers keep bees to fertilise their fruit-bloom.

This reminds me of my visit to (our noble and good President of the British Bee-keepers' Association) the Baroness Burdett-Coutts' residence at Highgate, on April 8th, 1870. When I went into the peach-house, the gardener said to me, 'See what a quantity of peaches I have got set!' I said, 'You have indeed; how do you account for it?' 'Well,' he said, 'I have always kept bees to fructify my fruit-bloom; but last autumn I bought a stock of Ligurian bees, and they being hardier than the common bees, they began working earlier, and got into the peach-house just as the trees were coming into bloom, and the result is I have nearly double the quantity of peaches set I ever had before.'

With such evidence as this, it does seem strange, indeed, that the Council of the Royal Agricultural Society are so blind and ignorant as not to encourage bee-keeping, as the bees so benefit the agriculture of this country, and it is for that the Council are elected to their high office.

Golden-rod (*Solidago*).—There are many species of the genus *Solidago*, growing in all kinds of soils, and nearly all yield a large supply of rich, thick, golden honey, of excellent flavour; they are also rich in pollen, and continue in bloom from July to November, or until the frost cuts it down, and long after most other plants have ceased to secrete honey. There are about 150,000 seeds in one ounce.

Willow herb (*Epilobium*). There are eleven species of the genus *Epilobium*. The rose-bay, or French willow (*Epilobium angustifolium*), looks very handsome on a large bed in the garden, with its pretty rose-coloured flowers, and it continues in bloom through July and August. It is a perennial, and grows from four to six feet high. Bees collect both pollen and honey from this honey from morning to night. It dies down to the ground in winter, and grows up again in spring.

Great hairy willow herb (*Epilobium hirsutum*).—This plant grows wild in watery places, from four to five feet high, blooms in July and August, and is an excellent plant for bee food.

Thyme (*Thymus*).—This plant yields a great quantity of very beautiful honey and of exquisite flavour. Lemon thyme might be advantageously used as edging for garden-walks and flower-beds. It is the wild thyme (*Thymus serpyllum*) that has made the honey of Mount Hymettus so celebrated. Cecrops took the bees to Mount Hymettus, and the Cecropean bees have survived all the revolutions which have changed the features and uprooted the population of Attica. Though the defile of Thermopylæ has become a swampy plain, and the bed of the Cephisus is laid dry, this one feature of the country has remained unaltered, and there are now upwards of five thousand bee-hives on Mount Hymettus.

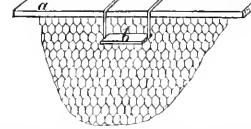
'And still his honey'd store Hymettus yields,
There the blithe bee her fragrant fortress builds,
The free-born wanderer of thy mountain air.'

—William Carr, *Newton Heath Apiary, near Manchester*.

(*To be continued.*)

COMB-FIXING IN FRAMES.

Whilst waiting for hives which I am getting made I have been thinking of the easiest way to fasten combs into bar-frames, and I think you will say that my plan is the most simple and effective yet in use. I take a piece of tin or stout card, 1 in. × 1½ in., and pass it through the comb about 1½ in. from the top, and then tie to top of frame with string, or pass an india-



rubber band over the top bar, and put the loops over the ends of the tin. I have tried to illustrate what I mean, but you can try it for yourself in two minutes. *a*, top of frame; *b*, piece of tin or card passed through comb, 1½ in. from top bar; *c*, string or

band clasping tin on both sides of frame bar, and holding it close up to its underside.

I hope you may think it worthy of a place in the *Journal*, and shall be glad of your opinion of it.—H. PARSON.

[The above arrangement would, we think, answer very well with light, empty comb, but is scarcely safe with heavy full ones, particularly if new, since one support would not be enough, and several would cut and weaken the comb too much.—ED.]

EARLY SWARM OF BEES.—It would appear that bees, like many persons, were deceived by the beautiful spring-like weather of last week into the feeling that this unusually severe winter had at last broken up and given place to a genial spring, but the cold weather of this week must have again thoroughly dissipated those ideas. However, on the 19th instant (April) a hive of bees belonging to Mr. G. Fisher, of Stoke Charity, threw off a swarm. The swarm shortly after went into a hive in a neighbouring garden.—*Hampshire Chronicle.*

[Reports like the foregoing often do good by causing readers to direct their attention to their own bees; but if the facts be inquired into, it will probably be found that instead of the bees having 'swarmed' in the proper sense of the term, they simply fled from a hive in which they were being starved, to join a stock where there was a chance of living.—ED. *B. B. J.*]

Echoes from the Hives.

Perthshire.—'I am sorry to say that yesterday (April 11) was the first day that my bees have got 200 yards from the hives since October last year. All the hives are very much reduced in bees, more especially those that threw swarms last year, and unless we get very warm weather soon, swarms will not be looked for in this high quarter.'—D. P.

High Wycombe, March 3.—'You may be interested in knowing that when I examined my frame-hives during the fine weather from the 11th to the 15th of February, I found two or three frames in each with a nice lot of sealed brood and larvæ. I was pleased, as you may guess, and my pleasure was further enhanced when, on the 1st and 2nd March I saw bees carrying *pollen* into two of my hives. I trust that after so severe a season we shall have a fruitful honey harvest.'—G. T.

Dysentery.—'I have lost seven stocks during the winter. The hives are wet, combs mouldy, bees dead by hundreds at bottom and hive bottom and sides, and in front of hive covered with chocolate-coloured nastiness. I have eight stocks alive, but few bees. They have been getting less every week, dying inside and outside. In January I changed every hive, made them clean and dry, but all to no use, they were soon as bad as ever. I have housecloth over the frames, and Abbott's Standard Cover. I cannot account for the above, without the fault is in the cover not giving ventilation sufficient.'—J. BAKER, 9 *Larchfield Street, Darlington.*

[There was something radically wrong in the *preparation for wintering* adopted in this case. Either the bees were fed at too late a date, or had improper food, or their quilts or super-covers were not properly ventilating. Abbott Bros. deny having supplied the hives or any part of them.—ED.]

'I am very much pleased with the Combination, and consider it the most perfect hive of the day, it being much more easy to manage than the Stewarton.'—FRYER BENNETT, *The Grove, Shifnal.*

Queries and Replies.

QUERY No. 306.—Will you kindly reply to the following queries in next *Bee Journal*, of which I am a diligent reader? (1.) What do you think of the enclosed material * for laying underneath the quilt? I bought some mats made of it slightly damaged for three-pence each, one yard long by eighteen inches. I have a piece on a Woodbury Hive, and hitherto the bees have not attempted to propolise it. It seems as if it would answer admirably. Naturally lying perfectly flat, too light to hurt a bee, nothing to entangle his feet, giving full ventilation, and, chiefly, rolling up so easily just parallel with the bars. (2.) In the case of flat-topped skeps should the excluder zinc be fixed underneath the hole in the crown, or laid over it when the supers are put on? (3.) Is charlock a good honey flower? our farmers allow their barley and turnip fields to be golden with it. On these Downs, 800 feet above the sea, bees that have had ordinary care taken of them, have stood the winter well, but I hear of many losses below the hill. I only began bee-keeping last May with two swarms I bought; these gave me some good glasses of honey, they are in flat-topped skeps, and weighed 28 lbs. and 32 lbs. respectively after these were taken off. My three other stocks, two in Cheshire hives and one in Makeshift Woodbury, I manufactured in September last out of eight condemned stocks, or rather second swarms, bought of cottages at 4*d.* per pound as they stood, deducting weight of hives. I drove the bees and transferred all the best combs to my frames. In a fortnight two of these without any feeding had filled out the frames with new comb, and sealed most of it, all these three are well and strong. I am now feeding all my stocks very gently and they devour pea-flour ravenously on fine days. I am now making three hives on your new 'Combination' principle; and I hope my bees will do well. Our Downs abound with gorse-wild raspberries, meadow saxifrage, and wild thyme, with a little heather; our hedges with hazel, fuller of catkins than I ever remember, hollies, and wild cherry. We have a small orchard and several magnificent sycamore-trees close by. Much sainfoin is also grown, and plenty of white clover; so if we get as real summer weather as we have had of winter, honey should be plentiful enough to test the 'Little Wonder' which I have used but once for the year. I shall use mostly sectional frames and supers, of your pattern and Lee's. Our cottagers, of course, all burn their bees, and think much of getting 20 lbs. of honey per stock.—COUNTRY PARSON.

REPLY TO QUERY No. 306.—1. If the bees would be on their good behaviour and refrain from propolising the matting, and tearing out the threads which hold it together, it would do very well, but it is not in their nature to do so. It has often been tried and discarded; though for winter use, when it is too late for propolising, and the bees are comparatively inactive it answers the purpose. 2. The excluder zinc should be laid over the hole in the crown of the hive. 3. Charlock is admirable as a bee-plant, though a dreadful weed on a farm, and one that farmers find a difficulty in destroying. In such a locality as that described bees ought to do wonders, and probably will when the weather will permit them. A good summer would be a boon to bee-keepers and would tend greatly to the enhancement of associations.—ED.

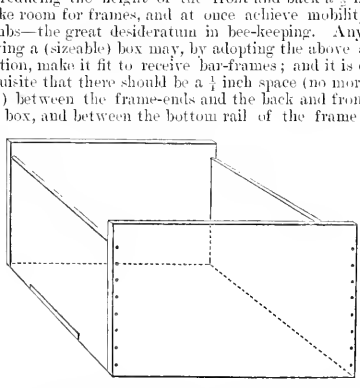
QUERY No. 307.—If in time kindly answer the following queries in next month's *Journal*:—*Boxes convertible to bar-frame hives.* 1st. Whether boxes that have been

* The material is composed of very small straw-like 'reeds' of wood held together by cross-woven threads, and is used for dinner-mats and toilet-wall 'tidies.' It is light, clean, and nice, when new and whole, but is very disagreeable when the threads give way.—ED.

used for hives 14 inches square and 8 inches deep, dovetailed, could, by making them moveable on top, be used for the doubling or Stewarton principles, or could you suggest a better use? 2nd. Whether if bars are across the hive the combs will be built as straight as along, and whether the hive *side* should be raised for swarms? 3rd. Do you intend two stands to be used, back and front, and fastened to the hive, or if one how prevent it toppling over? (See May *Journal*, 1878.) 4th. In making comb-foundation is anything used to soften the natural wax, as oil, and what?

P.S.—In asking the last question I may be trespassing on your generosity and willingness in giving your experience and thought so cheaply; if so, of course, don't answer it. The comb-foundation (Raitt's) seems too pliable for pure wax. Although my bees have been, hitherto, expenditure without any return, I am constrained to keep on. I have six healthy stocks to commence with and hope for the best. My best, earliest, and strongest stock is composed of four stocks united in bar-frame, saved from destruction by brimstone, so I am no loser by taking the *B. B. J.*—A Wrekin Boy.

Reply to Query No. 307.—1st. By cutting slots in the tops of the box-hives to permit the passage of the bees they might be used for storifying either on the Stewarton or the doubling principle, but we should infinitely prefer to take the crowns off the box-hives altogether, and then, by reducing the height of the front and back a ½ inch, make room for frames, and at once achieve mobility of combs—the great desideratum in bee-keeping. Anyone having a (sizeable) box may, by adopting the above suggestion, make it fit to receive bar-frames; and it is only requisite that there should be a ¼ inch space (no more or less) between the frame-ends and the back and front of the box, and between the bottom rail of the frame and



the floor-board, to render the hive perfect, as far as it goes; and then, by the addition of a quilt, consisting of one thickness of ticking and two or three of house-flannel, carpet, felt, or other porous material, it will be fit for the reception of a swarm. The question of 'roofing' must depend on the wishes or means of the owner, whether he contemplates an outdoor stand, or intends that his bees shall be in a shed or bee-house. Out-of-doors is always best.

2nd. When comb-foundation is used tilting is unnecessary, but when a simple line of wax only is used one end of the frames, in whatever direction they run, should be tilted.

3rd. If you allude to the cheap stand noted on p. 6 of Vol. VI., No. 75 in Abbott Bros.' Catalogue, it is evident you do yot understand its construction: it is formed of two pieces of board 9 inches wide, that cross each other and give a bearing area of 2 feet square or thereabouts, 9 inches high only. If this is not the subject of inquiry, we do not understand your meaning.

4th. The only means used to soften the wax in making comb-foundation is heat. Raitt's is as good as can be found in the market.

We have no trade secrets, but always give our best ideas to our readers.—Ed.

Query No. 308.—A friend of mine who has kept bees some few years, and has hardly had any success (his hives, I believe, have been the Cottage Hives principally), writes to me this morning that he had a common straw-skep hive last summer and the bees did very well, his being a good locality, and were fed about the end of October; and he supposed they were all right for the winter: but on turning up the hive on the 5th March, as no bees made their appearance during the warm days and did not answer when he tapped the same, he found, to his great astonishment, that all the bees had forsaken the hive, and that there were only about a dozen dead bees on the foot-board. The hive had about thirty pounds of honey in it, and there was no appearance of any snails, &c.,—in fact, none could get in; and he wanted to know how he could get the honey out, as it was congealed, and would not run out. I cannot understand why they have left the hive if it was in good preservation and well protected, as I believe it was. Can you? I suppose he had better heat the honey and combs to get the honey out. But I doubt if it will be much good.—A Subscriber.

Reply to Query No. 308.—There is little doubt but that the bees were queenless when they went into winter quarters and have died out. It is not an uncommon case, but is not always observed. It often happens that robber bees discover the deserted treasure, and keep up such a show of life and bustle, that the owner is deceived into the belief that the stock is most prosperous; but suddenly, when the hive has been rifled and sacked of its contents, he discovers its empty condition, and is at a loss for a solution of the mystery. A good overhaul in autumn would often save much vexatious disappointment. The honey should be scraped from the combs, avoiding the propolis, and after being gently heated, strained through a flannel or canvas bag.—Ed.

Query No. 309.—Why should not a strip of zinc over the entrance of a hive stop the passage of a queen and prevent swarming as well as the frame arrangement with excluder zinc inside?

Reply to Query No. 309.—Because if the queen wished to get out to join an intending swarm, there would be such a commotion at the impeded entrance as would probably cause the suffocation of the colony, and because, also, if half-a-dozen bees died within the hive, the efforts of the living to drag out the dead might, by choking the passage, bring about a similar result. If the excluder frame is inside the hive, the whole surface is available for passing bees, and a panic amongst them is most improbable.

Query No. 310.—Can I prevent drone comb in my new hives, and, if so, how?

Reply to Query No. 310.—Drone comb cannot be absolutely prevented, but its extent may be circumscribed by the use of work-comb foundation. Drones are so necessary in a hive in spring and summer, that, however one may try to prevent their production, the bees will continue their endeavours to produce them, and will tear away worker cells to produce drone cells in lieu of them.

Query No. 311.—1. Can I stock two bar-frames from one skep by placing it upon their frames respectively? 2. How long should I leave it on one before removing to second frame? 3. Would it be better to wait for swarms to issue and hive in frames? Give method to put swarm in frames. 4. Give best plan for feeding skeps. 5. If I poured a half-glass of syrup weekly into top of skeps, would it promote early breeding? 6. I am wholly opposed to stirring hives or skeps at this season: am I right? I have quilts made of one-fold flannel, two-fold flocken, one-fold furniture. Please reply in May No. of *Journal*, as the season is upon us.—Zulu, *Wexford*.

Reply to Query No. 311.—1. It might be done, but

would not be good practice. 2. Probably three or four weeks: depending on the season. 3. When ready, make an artificial swarm to stock one hive, and in three weeks transfer the remainder to the other. See Leaflet on subject. Post-free, 1*d.* 4. See Leaflet on Feeding. Post-free from the Office, 1*d.* 5. Ditto. 6. Hives are better without disturbance in cold weather; but entrances should be kept clear.—Ed.

Query No. 312.—Would you advise hives to be kept in a shrubbery? They would be on a small open space; but not much sun would get to them?—A. W., *Hereford*.

Reply to Query No. 312.—If the hive can be placed in a position where it would get the benefit of winter sunshine, should such (phenomenon, we had almost said) occur, it will be better in the shrubbery than elsewhere, as during summer it may perhaps be well shaded, and at other times protected from high winds.—Ed.

Query No. 313.—As it is a late season, would it be safe to move bees two miles about the middle of May, or would it be best to move them gradually into a friend's garden until next winter? I should like to move them the whole of the way, if it is not too late.

Reply to Query No. 313.—We should not hesitate about moving the bees as suggested; but if you wait until they have swarmed, or will swarm them artificially, you may remove them on the same evening with perfect certainty that none will go back.—Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Walter Welcombe.—The *Bee Journal* commences a new volume on the first of May in each year, therefore in Vol. VI. there are eight numbers prior to Jan. 1879: price, 6*d.* each, post-free. We do not keep any trade secrets in the sense implied. We tell all we know that we think of interest to bee-keepers; and as regards the manufacture of wax-sheet, we broke the neck of the monopoly that made it a secret in 1875—Vol. III. of *Journal*, p. 4, the pith of which we republish to-day, p. 3. The centre floor-board of the Complete Apiary is in width one-third the length of the hive, or thereabouts, and the others are run in from either end respectively, to meet it.

J. Rook.—Please refer to reply to 'North Stretton.'

R. J. Noyes.—Cutting off the points of the Standard frames will not interfere with their usefulness in the hive, or prevent their fitting any other hive of the kind. *Crown-boards* are the cause of immense difficulty and many disagreeables with bees, and we cannot recommend them under any conditions. The quilt is the best covering, except when supering. *Syrup granulating* requires a little more water, a little more acid, or a little more boiling—perhaps all three. There is such variety in sugars, that every one must make a rule for himself: a recipe in such cases is only a help. Syrup for spring feeding may be thinner than that used for autumn storing.

Lymington.—*Artificial Swarming.*—Having only one hive, and desiring to make an artificial swarm when it is sufficiently strong, it is immaterial whether you find the queen or not, provided one be present. If you procure a hive, the duplicate of your present one, and when 'the time' arrives (in the middle of a fine day), the stock should be divided, and half the full frames put into the new hive, and they should be set, say four feet to the right and left of the stand now occupied; the bees will nearly divide, and go to the new stands. If either should be found in an unsatisfactory condition after an hour or two, interchange of positions will rectify the inequality.

Allonby, *Cumberland.*—*Dysentery* is not infectious, but the *cause* being in the hive and combs, it would be unwise to put a swarm into them without first cleansing the hive, removing the honey from the combs, and spraying them with disinfecting fluid of some kind. Autumn feeding on barley sugar, unless very late (too late, indeed, for it to be sealed over), is not likely to have been the cause. Unsealed honey or syrup is apt to sour for the same reason that wines improperly corked, or preserves not well covered, 'go wrong.'

Southwick-by-Dumfries.—We guarantee safe arrival of Ligurian queens, but cannot be responsible for them afterwards.

Bees Dying.—Sugar and beer make a syrup that contains fermentive properties, and should never be given in cold weather, when bees are liable to long confinement to their hives. The deaths are probably caused by dysentery.

Litch Gates, *Wolverhampton.*—The motive in the mind of your adviser, when he condemned the bar-frame principle, may be easily gauged when it is remembered that for two 1*s.* 6*d.* skeps thrust into two 4*d.* cheese-boxes, the interstices being filled up with cow-dung, he realizes from 15*s.* to 1*l.* 5*s.* We do not believe the scamp has ever used a bar-frame hive in his life, and are sure he knows nothing of its uses. We would not advise the transfer of the bees, &c., from the hive named at present, but would wait until twenty-one days after they had swarmed. More than half the mischief and dissatisfaction that is caused by so-called 'new-fangled' operations arises through their being ill-timed, through deplorable impatience.

W. W.—*Plaster Moulds.*—Comb foundation, such as it is, is made on plaster moulds by dipping the moulds into molten wax, or by painting the wax on to the moulds with a brush. In either case the moulds must be kept cold and moist, or the wax will adhere to them and they will be spoilt.

North Stretton, *South Devon.*—*Hiving in hives with fixed legs* is easily performed. Set the hive correctly, so that top bars of the frame are higher at one end than the other turn back the quilt, and remove about three frames, which may be laid on top of the quilt to keep it from being blown away; then, catch the swarm in a pail or skep, the former preferably, and pour the bees into the hive. They will, as a matter of course (if the queen be present), rush into the part of the hive covered by the quilt, when the frames on top should be carefully replaced, and the quilt gently laid over them. This may be done without the loss of a single bee. Should the queen not be within the hive, she will be found amongst a cluster somewhere outside, and the operation must be repeated as in ordinary hiving; or should the bees return to the hive from which they emerged, it may be concluded that the queen did not come forth with them, or that she has fallen upon the ground, and they have been unable to find her. By a search in front of her hive she may possibly be discovered, and should be returned with the bees, and a sharp look out kept up on the next attempt at swarming. If found on the ground while the cluster of bees is hanging on a tree 'waiting' for her, put the bar-frame hive in the place of the parent hive, and put her majesty into it, with all the frames, &c., in position, and in a few minutes the safe hiving of the *swarm* will be assured.

*** *The Pink Wrapper, in which the* Journal *is sent out, denotes that Subscriptions are due; the majority for the new Volume, now current, but there are a few who, in the past, appear not to have noticed it, or its significance. May we ask as a favour that those who cannot find time to remit the amounts due will be good enough to order the* Journal *through their booksellers? We have given this month four extra pages, but we are still unable to insert many valuable contributions; and we desire to bespeak the kind indulgence of the writers for their postponement.*

BRITISH BEE-KEEPERS' ASSOCIATION,

INSTITUTED 1874.

PRESIDENT ... ... THE BARONESS BURDETT-COUTTS.

THE ASSOCIATION will hold their FIFTH GREAT EXHIBITION of BEES and their PRODUCE, HIVES, and BEE FURNITURE, and HONEY FAIR, at the Royal Horticultural Society's Gardens, South Kensington, in connexion with the Society's FLOWER SHOW, on Tuesday, July 22nd, and the two following days.

SCHEDULE OF PRIZES.

HIVES.

All hives to be fitted with guides ready for use.

Class. Prizes.

1. For the best hive for observation purposes, all combs to be visible on both sides, to be exhibited stocked with bees and their Queen ... ... 1st Prize, silver medal; 2nd ,, bronze medal; 3rd ,, certificate

2. For the best and most complete moveable comb hive, to include covering, stand, and facilities for storing surplus honey ... ... 1st Prize, silver medal; 2nd ,, bronze medal; 3rd ,, certificate

3. For the most economical (best and cheapest) complete hive, on the moveable comb principle, for Cottagers' use, including cover, floor-board, and facilities for storing surplus honey. Price not to exceed 10/6 ... ... 1st Prize, silver medal; 2nd ,, bronze medal; 3rd ,, certificate

4. For the best straw hive for depriving purposes, cost to be taken into consideration. Price not to exceed 5/0 ... ... Silver medal

NOTE.—Duplicate hives may be exhibited for the purpose of explanation, without any entrance-fee being charged. Each Exhibitor must be prepared to guarantee that he will supply any number of similar hives at the prices affixed to his exhibits. The prizes will only be awarded on this understanding.

SUPERS.

5. For the cheapest, neatest, and best supers for producing honey in the comb in a saleable form ... 1st Prize, silver medal; 2nd ,, bronze medal; 3rd ,, certificate

BEES.

*6. For the best stock of Ligurian bees 1st Prize, silver medal; 2nd ,, bronze medal; 3rd ,, certificate

*7. For the best stock of other Foreign bees ... ... 1st Prize, silver medal; 2nd ,, bronze medal; 3rd ,, certificate

*8. For the best stock of pure English bees ... ... 1st Prize, silver medal; 2nd ,, bronze medal; 3rd ,, certificate

* The bees to be exhibited living with their Queen in Observatory hives. All combs to be visible on both sides. These classes are distinct from Class 1.

HONEY.

Class. Prizes.

9. For the largest and best harvest of honey in the comb, from one stock of bees, under any system or combination of systems. The honey to be exhibited with or upon the hive that produced it (or its facsimile). To be attached thereto, a legibly written explanation of the method adopted, the locality, pasturage, dates of swarming and supering. To this may be added any particulars of his apiary which the Exhibitor may be disposed to give, such as number of hives, average yield, &c. 60/0 40/0 20/0

10. For the best exhibition of super honey from one apiary 40/0 20/0 10/0

11. For the best super of honey. The super to be of wood, straw, or of wood in combination with glass or straw. Seven Prizes— 40/0 30/0 20/0 15/0 12/6 7/6 5/0

12. For the best glass super of honey. Five Prizes— 20/0 15/0 12/6 7/6 5/0

13. For the best exhibition of honey in supers, or section of supers, separable, and each not more than 3 lbs. in weight, the total weight of each entry not to be less than 12 lbs. 30/0 20/0 10/0 7/6 5/0

14. For the best single section in the comb, weighing not more than 3 lbs. ... ... 1st Prize, 10/0 2nd Prize, 5/0

15. For the largest and best exhibition of run or extracted honey in glasses, not to exceed 2 lbs. each ... 30/0 20/0 12/6 7/6

In Classes 11 and 12, weight and quality will be taken into consideration.

COTTAGERS' CLASSES (No ENTRANCE FEE).

16. For the largest and best exhibition of super honey in comb, the property of one exhibitor, and gathered by his own bees—

Special Prizes given by the Rev. H. R. PEEL, Messrs. R. STEELE, and Mr. S. J. BALDWIN— 1st Prize, 20/0 and hive. 2nd ,, 10/0 and hive. 3rd ,, 5/0 and certificate.

17. For the best super of honey— 30/0 20/0 15/0 10/0 7/6 5/0

18. For the largest and best exhibition of honey in sectional supers, each section not to exceed 3 lbs. in weight 30/0 20/0 15/0 10/0

SCHEDULE OF PRIZES—Continued.

Class. Prizes.

19. For the best exhibition of run or extracted honey in glass jars, not to exceed 2 lbs. each 20/0 15/0 10/0 7/6 5/0

All the honey exhibited in the above Classes, must be *bonâ fide* the produce of 1879, and gathered in the natural way by bees in the United Kingdom.

COMESTIBLES.

20. For the best mead or beer made from honey, with recipe attached 1st Prize, silver medal
2nd ,, bronze medal
3rd ,, certificate

MISCELLANEOUS.

21. For the best and largest collection of hives, bee-furniture, bee-gear, and bee-keepers' necessaries, no two articles to be alike ... ... 1st Prize, silver medal
2nd ,, bronze medal
3rd ,, certificate

22. For the best honey extractor— 1st Prize, silver medal
2nd ,, bronze medal
3rd ,, certificate

23. For the finest sample of pure bees' wax, not less than 3 lbs. in weight 10/0 7/6 5/0 2/6

24. For any invention calculated in the opinion of the Judges to advance the culture of bees—

Silver or bronze medal, at the discretion of the Judges.

25. For the best microscopic slides illustrating the natural history of the honey bee ... ... Silver medal

26. For the best and largest display of British Bee Flora in a dried state or otherwise, such plant or specimen must have a card attached stating time of flowering, duration of bloom, and any other particulars calculated to be of interest to bee-keepers ... ... 1st Prize, silver medal and 20/0
2nd ,, bronze medal and 10/0
3rd ,, certificate and 5/0

27. For the best and cheapest pair of honey jars, with covers and fastenings complete, to contain 1 lb. and 2lb. each of extracted honey ... ... 1st Prize, 20/0
2nd ,, 10/0
3rd ,, 7/6

28. For the best smoker ... ... Bronze medal

Class. Prizes.

29. For the best bee dress ... ... Bronze medal

30. For the best set of diagrams illustrating the honey bee ... ... ,,

31. A separate Class will be open for the exhibition of hives and apiarian appliances at present used in other countries, as well as any utensils, obsolete or curious, which are likely to prove attractive and interesting to Bee-keepers. *No entrance fee will be required in this Class*, and gentlemen in a position to send such objects of interest, will oblige by communicating with the Honorary Secretary as early as possible.

32. HONEY FAIR.—A distinct counter will be appropriated to the exhibition and sale of honey in the comb and in glass, and in this department goods may be purchased and delivered at all times during the show. Every exhibit at this counter must have distinctly marked upon it the weight and the price, which must include the package that contains it. The Association will not undertake to break bulk. One Penny in the Shilling will be charged as commission on all orders taken and sales effected in the various classes throughout the show. The sales of all exhibits, except in the Honey Fair, to be effected at the Secretary's Office.

33. Driving Competition.—For the competitor, who shall in the neatest, quickest, and most complete manner, drive out the bees from a straw skep, capture and exhibit the queen
1st Prize, silver medal and 20/0
2nd ,, bronze medal and 10/0
3rd ,, certificate and 5/0

Each competitor shall bring his own bees in the straw skep in which they have worked and bred in. The system of open driving shall be adopted; the receiving hive to be inclined at such an angle as shall permit the passage of the bees to be viewed by the spectators. The driving shall be considered complete notwithstanding a few straggling bees may be left in the hive, but total removal should be aimed at. No combs shall be wilfully removed, nor broken. The queen must be captured and confined in a glass-covered cage (to be provided by the Association) and handed to the Judges for their inspection. No veils or gloves to be worn. Any dispute, or difference of opinion, shall be referred to the Judges present, whose decision shall be final. The bees may be returned to their hives, and removed or sold at their owner's pleasure. No commission will be charged on bees so sold. The competitors must be ready to commence the competition at 2 o'clock.

THE HIVE FOR THE MILLION.

Price 8s.

THE PRACTICAL STANDARD, a marvel of efficiency with economy, price, complete, 18s.

ABBOTT'S NORTHERN STANDARD, a Prize Hive, price, complete, 27s. 6d.

ROOT'S MACHINE FOUNDATION, 3s. 6d. per lb. Samples on receipt of Stamped Envelope. Send Two Stamps for Catalogue, containing full description of our Hives, and How to Work them, to E. W. Lister, Oakwood, Kirkburton, Yorkshire. fo. 8

NEW FEEDER.

BY return Post, for Four Penny Stamps, will be sent a full description of a new, simple, cheap, and practicable FEEDER, which will make Syrup available in any part of the *interior* of a Hive, without removing Frames or Quilts. Address G. N. Preen, Mayfield Villa, Kidderminster. fo. 21

BEE-HIVE EMPORIUM.

WILLIAM W. YOUNG,

150 HIGH STREET, PERTH, SCOTLAND,

Having obtained the FIRST PRIZE for the Best Collection of BEE FURNITURE at various Shows, both in England and Scotland, in 1879, he is now in a position to supply every article that is best adapted for the successful Management of the Honey Bee. fo. 24

Illustrated Price Lists free on receipt of Stamped Envelope.

COMB FOUNDATION.

WILLIAM RAITT offers Finest Impressed Sheets, for next Season, at Reduced Prices. Sheets, 9 ins. deep, for Brood Combs; 5 ins. deep, very thin make, for Supers. Safe arrival guaranteed.

See opinions of the Rev. G. A. Procter, and J. S., in B. B. J. for November and December.

Send stamp for Sample and Price List.

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Address—Beecroft, Blairgowrie, N.B. fo. 16

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Whitting ham Hall,
Fressingfield.

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 74. Vol. VII.] JUNE, 1879. [Published Monthly.]

Editorial, Notices, &c.

JUNE.

The year 1879 will be memorable in the annals of apiculture for its exceedingly unkind spring, or, more correctly, for the conspicuous absence of that supposed genial season; for up to the time of writing (May 26) there have not been two fine days together during the whole of its existence, and neither flowers nor bees, struggle as they may, can fulfil their purpose, though tended never so carefully. Of this year it may be truly said that—

> 'Winter, lingering on the verge of Spring,
> Retires reluctant, and from time to time
> Looks back; while at his keen and chilly breath
> Fair Flora sickens.'

It is not a difficult matter for an expert bee-keeper to give directions which should be applicable to any particular month, and if the weather could be relied on the bee-keeping pursuit would be easy, delightful, and highly remunerative; but inasmuch as 'the wind bloweth where it listeth,' and the 'elements' are governed by laws which, though permanent, are little understood, and which act and react as they are variously brought into play by passing circumstances, it is no wonder that the experts and the weatherwise are often limping, or that their clever forecasts are as uncertain as is the result of an action at law—except in the sense that there is sure to be a vast amount of disappointment.

As a consequence of the long-continued cold weather, vegetation, where it has survived, has remained at a standstill, and corn crops that ordinarily should afford cover for a hare are scarcely tall enough to hide a lark. Grass fields have in thousands of instances but just been 'rolled and harrowed,' and the probability of a crop highly speculative. The whitethorn, which should have gladdened May with its odoriferous May-blossoms, has nowhere shown a flower, and the gorgeous flowers of the horse-chestnut are yet in reserve.

Bees under such circumstances have required great attention, and where it has been given they are now in forward condition and doing well; but, on the other hand, where they have been intrusted to 'Providence' by those who were too lazy or careless to give them the needed assistance they have died, and their owners have cause and opportunity to lament their folly and neglect. According to book rule, good colonies should be ripe for swarming in May; but—except in very isolated cases—swarms have not appeared, and from what we have heard and seen they will not be ripe until far into the present month. There is, however, hope for those who have cultivated their pets: the days are lengthening, and breeding rapidly increasing, and surely presently there will be a change that will cover the earth with glorious beauty. There is promise that seed-time and harvest, summer and winter, shall continue; and bee-keepers, like others who depend greatly on the weather, must bear with its vicissitudes, and wait and hope.

USEFUL HINTS.

Refer to the hints offered in former *Journal*—there may be something there more suited to the requirements of the present than the past month. Always be prepared for that which is apparently most improbable. The season being a late one, after-swarms may be too late to stand the next winter alone; double them, therefore, by uniting, as explained in a late number of *Journal*. Do not despair because we are writing and thinking of 'next winter' before we have passed through the present one—the sunny birthday of our Empress Queen notwithstanding.

Strengthening Weak Stocks.—If it be found necessary to strengthen a weak stock by giving it a comb of brood let it be *sealed* brood, so as to hatch quickly and not increase the labour of the bees. Take care also that the brood-patch is not of larger area than that in the centre of the recipients' brood-nest, for there will be sufficient risk in widening it by

the insertion of a comb. A comb with a large circle of brood put into a small brood-nest would possibly cause mischief, as the bees might not be able to cover and care for it, and it would die of cold.

ARTIFICIAL SWARMING.—The ability to perform this operation and the pleasure which command over bees creates in the minds of beginners frequently induces impatience, and as a consequence the swarm is often made before the stock is ripe for division. This has a weakening tendency. It doubles the number of colonies, it is true; but practically it makes them all impotent, and therefore unprofitable. Swarms cannot get food in cold or wet weather, therefore feed them as occasion demands. Swarms will continue to build comb while supplied with food; if a supply ceases they stop work, and will not resume until a glut of honey calls for more space, and then they will build drone-comb. It is important therefore that a supply of food should be kept up until the hive is filled with comb. When swarms are prematurely made, and when natural swarming takes place, on a day succeeded by a cold evening the entrances of the parent stocks should be nearly closed; for the majority of the bees having departed the heat of the hives must be economised, or the brood will suffer.

SUPERING.—The time for supering is when the hive is full of combs, the combs well covered with bees, the weather fine, and honey abundant. A great inducement to the bees to take possession of supers is heat artificially applied. A valuable suggestion was made by an esteemed correspondent last autumn, to the effect that a coil of tubing laid round a glass super and filled with hot water, and well wrapped up, caused the bees to take instant possession and commence work. Every one has not a coil of piping at hand, but hot bricks or bottles of hot water *can* be found; but the bricks must not be too hot, or they will burn the material in which they are wrapped and spoil the experiment.

SUPERS.—Use sectional supers only; they are neat, clean, handy, of saleable sizes, and convenient for the table, or for making presents—a luxury all lovers of bees delight to indulge in.

EXTRACTING.—Those who wish to obtain all the honey possible in such a chance season should use the extractor freely. A few hours of fine weather enable strong stocks to store honey largely, and its extraction will maintain plenty of breeding space. It is the *incoming* of honey that promotes breeding, not the quantity stored, though a sufficiency for the use of the bees must be left in the combs.

GETTING BEES OUT OF SKEPS.—Where it is desired to transfer from skeps to bar-frame hives and not increase the number of stocks, drive swarms from two and unite them in one frame-hive, well supplied with foundation, and set one skep upon the other on a different stand, giving a ripe Ligurian queen cell on the next day. Fourteen days after the chief of the brood in the skeps will have hatched out, and the young queen laying (if all be well), and the combs may then be transferred, rejecting the drone and such as are too crooked or dirty. In three days supers may be set on and covered up warmly.

[Our readers will oblige our poor 'right hand' more than 'considerably' if they will kindly remember that we have only *one*, and that it is very hard to have to rewrite with it information that has been many times given, and sometimes so late as in a current number of the *Journal*. We ask also as a favour that inquiries may be written separately, that we may not be compelled to repeat them in replying. The 'Coming Man' suggested by Charles Reade will perhaps have more power, and may be able to write with both right and left at once. We are but as we are, and our right hand often complains, and not without reason. —ED.]

DYSENTERY.

Those interested in this subject under whatever heading it may be described, will do well to turn to an 'Echo' with the above title on page 18 of the present volume, where may be seen the easy way in which an apiary may be destroyed, its owner disgusted, and bees and hives voted a nuisance.

The writer lost seven stocks during the winter, and has eight left. The hives are wet, combs mouldy, bees dead by hundreds at bottom, the hives reeking with the stench of the bees' excreta, bees dying daily, inside and outside, and getting weaker every day, and all this mischief is described as having taken place in 'Abbott's Standard Hives.'

We suggested that the mode of *preparation* for wintering had been wrong, and hinted at other possible causes, but the writer has now furnished information that renders the case as clear as noon-day. He says:—

'With regard to what you say in the May number respecting my bees, they were taken to the moors the beginning of August about eighteen miles, and brought back in September, full of bees and honey. I took four combs of honey out of each hive and left plenty of honey to serve them until May and have not fed them at any time. The frames are covered with one fold of house-cloth, the hives standing in a wooden shed standing against an iron drill shed facing the north, the sun never shining on it during the winter. I bought one of your Standard hives at the Alexandra Palace in September 1876, and made the others from it.—J. BAKER, 9 *Larchfield Street, Darlington.*'

On page 220 of *Bee Journal*, Vol. III. a case is recorded, and can be readily verified, where thirty-two stocks, all in straw skeps, had in autumn been placed against a north wall and out of the whole lot only five could be found that in March following were likely to survive. The large remainder being depopulated, rotten, and mouldy; and the cause we assigned to account for their deplorable condition, viz., *absence of sunshine* during the long winter, will apply in the present case. We have many times repeated and again repeat, that when hives cannot internally feel the benefit of winter sunshine, they are practically as if in a well, and cannot of themselves improve if an ill condition of things should be brought about by cold weather. We do not by this, wish it to be inferred that the sun's bright rays are to be permitted to shine into the entrances of hives during cold weather, as they are known to attract bees forth to their death, particularly when snow is lying about; but in our opinion nothing can be more beneficial during a protracted winter than that the bees should feel the genial effects of the sun's rays at every opportunity; a gentle rise in the temperature thus caused will enable bees to move about their hive and make themselves comfortable, and no harm can arise from such stimulation if the light be not allowed to get in also. Entrances in winter should be shaded, not closed.

RESPONSIBILITIES OF VENDORS OF BEES.

Now that the bee business has assumed commercial importance in this country, and buying and selling are every-day occurrences, it may not be out of place for us to advise that some rule should be made which should be considered 'understood' between buyer and seller. We have happily during the past month procured (having been the arbitrator agreed upon by both parties) the settlement of a dispute which arose through there being no established rule to govern the sale and purchase of bees, whether they be stocks, swarms, or queens, and it arose in this wise:—

A. advertised stocks of bees for sale, B. made a purchase, a stock was delivered and the price agreed upon was paid to A. A month (or more) afterwards A. received an application for the return of the money paid by B. on the ground that the stock *must have been queenless* when it was delivered to B., for, on the tenth day after its arrival, a young dead queen was found on the alighting-board, and two open queen-cells were seen within the hive (a skep), but B., not wishing to write until quite sure of the case, waited nearly three weeks for an opportunity to transfer its contents to a bar-frame hive, and on doing this he found neither queen, eggs, nor brood, hence the letter to A., requesting the return of the money aforesaid. A. thereupon replied that after so long a time the return of the money was out of the question, but said that if application had been made before the transferring had been done he would have exchanged the stock, but *that* being now impossible, he would send another at half price, or would give a Ligurian queen as compensation for the loss sustained. A. admits that he did not see the queen before he sent the stock to B., but saw every needed evidence of her presence, and B. admits that he did not seek for the queen on their delivery to him; but he (B.) declined A.'s offer, and they both agreed to refer, and defer to our opinion and award.

This we gave to the effect, after having read the statements of both sides, that B. should accept one of the alternatives offered by A., viz., either another stock at half price, or an imported queen to give to the bees in question, or to another stock in his apiary.

No one can be sure of the fate of bees or their queen from hour to hour, and therefore safe delivery is all that can be reasonably expected.

B. was satisfied of the safe delivery, and did not search for the queen or evidence of her presence, while A. thoroughly believed that the queen was safe when the stock left his hands.

From what has transpired there are good grounds for believing that the queen died or was killed during her railway journey.

A young queen was found on the alighting-board, and two queen-cells seen in the hive ten days* after their arrival, and these facts ought to have been at once communicated to A., who could then have exchanged the stock.

Nothing, however, was said to him until a month after the delivery of the bees, and in the meantime they had been transferred to a bar-frame hive by B.

We therefore advised B. to accept the offer given, give a black queen from one of his own stocks to the queenless Ligurians, and the new queen to his unqueened black ones,—which has been agreed to. This unfortunate case bears out our remarks expressed in May *Journal*, pp. 2 and 3, not that we wish to suggest that A. is a land-shark, for we have known him many years as an honourable man, but because stocks in transit are liable to accidents, and it is often so very difficult to apportion the blame or rectify the damage.

The question to be decided is, where does the responsibility of the vendor end, and that of the vendee begin?

* Ten days is ample for the production of young queens, especially after the excitement of a long journey. —Ed.

COMB-FOUNDATION.—HOW DEEP MAY IT BE PUT INTO FRAMES?

Whilst the majority of foremost bee-keepers are loud in the praise of comb-foundation, as a means of saving bee-labour and bee life, and ensuring straightness of combs in frames and regulating the proportion of worker and drone-comb in a hive, no one appears to have hit upon a means by which the greatest depth of foundation may be used with safety. It is well known that in accepting the foundation and commencing their work the bees rarely, if ever, begin at the top, and consequently their weight and that of the new comb they elaborate with its contents depends on the sheets alone, and if *their* attachments to the top bars are insecure they fall or 'sag,' and destroy the symmetry and beauty they were intended to ensure. Attempts have been made to weave into the foundation a material that shall absolutely prevent its stretching or falling, but nothing satisfactory has been produced, and we have therefore turned our attention to the attainment of the object by other means.

Instead of attempting to support the foundation we suggest that it would be equally efficacious if support were provided for the bees, so that they should not throw their weight upon the foundation alone, and for this purpose hope to induce bee-keepers to experimentalize in that direction. Our idea is, that if pieces of say $\frac{3}{4}$-inch galvanized wire netting, properly flattened were suspended alternately between the frames containing the foundation, the desire would be accomplished, for the weight of the bees would necessarily be very largely borne by it and the foundation relieved. It may, however, be thought by scientists that the iron, through the clustering bees, would be a drawback, and to meet that objection, which however we regard as chimerical, we suggest the use of wood, and would let it answer the double purpose of supporting the bees and preventing the loss of heat round the ends of the frames during the comb-building season. A light frame might easily be made to fill the space between the frames; and if threads of cane, such as are used by chair-makers, be drawn through and through, a strong but almost imperceptible support would be formed on which the bees would find easy attachment, and little if any inconvenience; and it is not difficult to understand that if each frame gave foothold for a thousand bees, two other thousands would depend from them, so that the weight of three thousand would be taken off the comb-foundation by every such frame, or interposed piece of wire-work. Those who are unable to obtain the netting, or the cane, will probably find other means of support for the bees during the time of comb-building; a diaphragm of thin board would probably answer the purpose; anyhow, the experiments are worth trying.

COUNTY ASSOCIATIONS.

The following County Associations have already affiliated themselves with the Central Associations, and paid their affiliation fees, viz.: —Dorsetshire, Devon, Hertfordshire, Lincolnshire, Shropshire, and Surrey.

An Association has been lately formed for Nottinghamshire, and we notice that the Rev. Canon Mole, who is so well known in connexion with rose-growing, is one of the Committee for that Association. We wish it every success.

We are also informed that steps will shortly be taken under influential auspices to form a county Bee-keepers' Association for Lancashire, which is likely to be a very strong and successful one. As a commencement of an Association for Cornwall, Mr. S. J. Baldwin visited the Show of the Penrith Agricultural Society on May 30th, at Penzance, near the Land's End, at the request of Mr. W. K. Baker, of Towednack, and several Cornish bee-keepers. The Hon. Secretary is also in correspondence with the Secretary of the Royal Cornish Agricultural Society, which is to hold its Annual Show at Falmouth on June 11th and 12th, as to a visit of the Bee Tent and Manipulator, with the same object in view.

BRITISH BEE-KEEPERS' ASSOCIATION.

We have been requested to call attention to the fact that Members' subscriptions were due on the 1st of May last, and that, according to Rule 6, Members whose subscriptions are unpaid are considered in arrears after that date, and as such not entitled to any of the privileges of the Association.

We are happy to announce that the Baroness Burdett-Coutts has given a donation of 25*l.* towards the objects of the Association.

KILBURN SHOW.

We understand that the entries for the Exhibition to be held at Kilburn include several competitors from France, Italy, Germany, and the United States. The entries for Observatory and other hives exceed thirty; and there is also a good collection in the honey classes. In the driving contest, Monsieur Fournier, of Ormoy Villers, France, will try the mettle of the English bee-masters.

We wish to call the attention of our readers to the fact that two Classes, Nos. 20 and 21, have been added to the South Kensington Prize List for Foreign and Colonial competition

exclusively—no entry fees required in these classes. It is hoped that all the Foreign Bee Journals will make this announcement as widely known as possible.

Herr Demmler, Master of the School at Enzheim, near Strasburg, Professor of Apiculture and Editor of the *Alsace-Lorraine Bee Journal* has announced his intention of competing for the driving Prize at the South Kensington Show.

Schedules of Prizes, with the Rules and Regulations and entry forms for the South Kensington Show, may now be obtained upon application to the Hon. Secretary, Rev. H. R. Peel, Abbot's Hill, Hemel Hempstead.

FORTHCOMING SHOWS, 1879.

See also engagements of British Bee-keepers' Bee Tent.

June 30th.—British Bee-keepers' Association, at Kilburn, and seven following days; in conjunction with Royal Agricultural Society of England. Entries closed May 1st.

July 3rd.—Tiverton Branch of Exeter Association. Hon. Sec., W. N. Griffin, Rock House, Alphington, Exeter.

17th.—The Surrey Association hope to hold their first Show of Honey, Bees, and Bee-furniture in Clandon Park, kindly permitted by the Right Hon. Earl of Onslow. F. H. Lemare, Esq., Hon. Sec. Sidney Terrace, Guildford.

22nd and two following days. — British Bee-keepers, at Royal Horticultural Gardens, South Kensington, in connexion with their Flower Show. Rev. H. R. Peel, Hon. Sec, Abbot's Hill, Hemel Hempstead, Herts.

29th and three following days. — Caledonian Apiarian and Entomological Society, at Highland and Agricultural Society's Show, Perth, N. B., Hon. Sec., R. J. Bennett, 50 Gordon Square, Glasgow.

August.—Central Show at Exeter, date not fixed. Hon. Sec., W. N. Griffin, as above.

14th.—St. Mary Cray. J. Garnet, Hon. Sec. Hockenden, St. Mary Cray.

20th and *21st.*—Shropshire, at Floral and Horticultural Show, Shrewsbury. Rev. Hon. C. Fielding, Hon. Sec.

29th and *30th.*—Arbroath, N. B. J. Stewart, Hon. Sec., Arbroath.

September 4th, 5th, 6th.—East of Scotland, Dundee. Hon. Sec., W. Raitt, Bee Croft, Blairgowrie, N. B.

17th and *18th.*—Lincolnshire Bee-keepers' Association, in connexion with the Long Sutton Agricultural Society. Hon. Sec., R. R. Godfrey, Watergate, Grantham.

ENGAGEMENTS FOR THE BEE-TENT FOR 1879.

June 26.—Aylesbury Horticultural Show.

June 30 to July 7.—Royal Agricultural Show The place selected for the Exhibition of bees, hives, and honey at the Royal Agricultural Show is adjoining the Horticultural Exhibition in the Show grounds.

July 9.—At Hitchin Flower Show.

July 10.—At Dunstable Horticultural & Poultry Show.

July 17.—Hertfordshire County Bee-keepers' Association Show at Hertford.

July 17.—Surrey County Bee Show at Clandon Park, Guildford.

July 22–24.—British Bee-keepers' Association Annual Show.

July 29.—Shendish Flower Show, Hemel Hempstead.

Aug. 8.—Berkeley Flower Show, Gloucestershire.

Aug. 13.—West Herts Horticultural Show at Watford.

Aug. 14.—St. Mary's Cray Bee and Honey Show.

Aug. 20 and 21.—Shropshire Horticultural and Bee and Honey Show at Shrewsbury.

Aug. 26.—Long Buckby Horticultural Show.

Sep. 3.—Much Hadam Ware Cottage Garden Show.

Sep. 4.—Horsham Flower Show, Sussex.

Sep. 9 and 10.—Warwickshire Agricultural Show at Atherstone.

Oct. 1 and 2.—Hertfordshire County Bee-keepers' Show at Hemel Hempstead.

Other engagements are in course of arrangement.

LETTER FROM THE REV. H. R. PEEL.

Dear Sir,—May I, through your columns, inform the Members of the British Bee-keepers' Association, and all who take an interest in bee-keeping, that a Prize Fund is now open for the two Exhibitions, which we are about to hold this year, at Kilburn in connexion with the Show of the Royal Agricultural Society on and after June 30th, and at South Kensington in the gardens of the Royal Horticultural Society on July 22nd and following days.

I hope that the Royal Agricultural Society may be so well satisfied with our arrangements at Kilburn that we shall, for the future, receive an annual invitation to accompany them on their visits to the principal towns of England, thus giving our Association an opportunity of making its appearance in the provinces, as well as at its yearly Show in London.

Our President, the Baroness Burdett Coutts, has again responded most liberally to my application for assistance, and several gentlemen have already come forward with donations, some indeed volunteering before an appeal could be made to them.

I hope that none of our Members will withhold their accustomed support to our Prize Fund on the ground that we have at the present time a balance of 80*l.* 13*s.* 6*d.* in the hands of our Treasurer. The whole of this money will be needed for the development of the County Associations, than which there can be no better agency for the extension and improvement of bee culture, and for the ordinary demands of the parent Association. It will be a great relief to the latter if the prizes offered at the the two Shows can be provided from a special Fund, without drawing upon the annual subscriptions of the Members.—I remain, Sir, yours faithfully,

Herbert R. Peel, *Hon. Sec.*

Abbot's Hill, May 26th.

The following Donations have already been made to the Prize Fund.

	£	s.	d.
The Baroness Burdett Coutts	7	0	0
Rev. E. Bartrum	1	1	0
T. W. Cowan, Esq.	1	1	0
R. R. Godfrey, Esq.	1	1	0
F. R. Jackson, Esq.	1	1	0
Captain D. E. Martin	0	11	0
H. G. Morris, Esq.	1	1	0
Rev. H. R. Peel	2	2	0

BRITISH BEE-KEEPERS' ASSOCIATION.

A Committee meeting was held in the Board-room of the Society for the Prevention of Cruelty to Animals, 105 Jermyn Street, on Wednesday, May 14. Present, Mr. T. W. Cowan, in the chair, Rev. E. Bartrum, J. M. Hooker, J. Hunter, Rev. H. N. Peel, hon. sec., and W. O'B. Glennie, treasurer. The minutes of the last Committee meeting, also of the adjourned meeting held on April 23rd, were read and confirmed. On the proposition of the Secretary, it was unanimously resolved that the regulation of awarding prizes at the South Kensington Show, in accordance with the price named, should be confined to Classes 3 and 4 in the Schedule. It was also resolved that two more classes should be added to the Prize list, which should be open to foreign and colonial exhibitors only, these classes to be for, (1) For the best exhibit of honey in the comb, either in sectional or any other supers, the weight of each exhibit to be not less than 12lbs.—First prize, 2*l.*; Second, 1*l.* 10s.; Third, 1*l.* (2) For the best exhibition of run or extracted honey in glass jars, not to exceed 2lbs. each: First prize, 1*l.*; Second, 15*s.*; Third, 10*s.*

The Secretary asked the Committee to sanction an appeal to be made by him in the columns of the *British Bee Journal*, *Journal of Horticulture*, and other papers for contributions to the Prize Funds of the Kilburn and South Kensington Shows, and announced that the nucleus of such a fund had already been made by the following donations: Messrs. Nunn and Son, 2*l.* 2*s.*; Mr. H. Morris, 1*l.* 2*s.*; R. R. Godfrey, Esq., 1*l.* 1*s.*; Rev. H. R. Peel, 2*l.* 2*s.*

Mr. Glennie read a letter received from Mr. F. R. Jackson, of Slindon, Arundel, suggesting that such a fund should be started, and promising a contribution of one guinea. Mr. T. W. Cowan also presented a similar amount. It was also resolved that a notice should be inserted in the Prize Schedule, stating that advertisements would be received for insertion in the Catalogue of the South Kensington Show at the rates of,—Whole page, 1*l.* 1*s.*; half page, 12*s.* 6*d.*; quarter page, 7*s.* 6*d.*

The Balance Sheet for the month ending April 30th was read by the Treasurer, as follows:—

	£	s.	d.
Income: Amount brought forward on April 1st	77	11	1½
Amount received from April 1st to April 30th	17	14	6
	95	5	7½
Expenditure: Amount brought forward being the amount expended since Jan. 1st	10	0	11½
Amount expended from April 1st to April 30th	4	11	2
	14	12	1½
Balance in hand	£80	13	6

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION SHOW AT LONG SUTTON.

Allow me through your *Journal* for June to draw attention to my note in your issue of March last, in which I state that the Lincolnshire Bee-keepers' Association had received an invitation from the Long Sutton Agricultural Society to hold their next annual exhibition in conjunction with the great meeting of that old and important society. I now beg to inform you that a committee meeting of the L. B. K. A. being convened to consider the invitation, it was unanimously decided to accept it. Resolutions as to conditions were passed, which the Hon. Sec. was asked to submit to the committee of the Long Sutton Agricultural Society for their consideration. This was accordingly done, and I have now the pleasure to announce that at a meeting of members of the Long Sutton Agricultural Society, held on the 20th inst., it was unanimously resolved to accept the resolution submitted by the Lincolnshire Bee-keepers' Association for holding their annual exhibition in conjunction with their great meeting to be held on the 17th and 18th of September next. Mr. Swaine, the Secretary of the Long Sutton Agricultural Society, having so deeply interested himself in bringing about this arrangement, it cannot fail to prove of great benefit to the L. B. K. A., I would beg to impress upon members the importance of giving their hearty support on the occasion. I may also add that by invitation, the L. B. K. A. will be represented at the Grantham, Caythorpe, Fulbeck, Bottesford, and other local horticultural shows during July and August. The exact dates will be forwarded to members as soon as fixed.—R. R. Godfrey, *Hon. Sec.*

SURREY BEE-KEEPERS' ASSOCIATION.

I hope I am not too late for a small space in June *Journal* to announce that the Surrey Bee-keepers' Association will hold their first county show on the 17th of July at Clandon Park, Guildford, under the patronage of the right hon. the Earl of Onslow; and in connexion with the local flower show held there. The schedule of prizes, &c. will be given in the July number. The British Bee-keepers' Tent is expected to be in use on the occasion.—Fred. H. Lemare, *Hon. Sec.*, 4 *Sydney Terrace, Guildford.*

EAST OF SCOTLAND BEE-KEEPERS' ASSOCIATION.

The summer meeting of the members of this society was held in Lamb's Hotel, Dundee, on the 17th May. The date of meeting being so near the Whitsunday term many country members were unable to attend; but there were still twenty members present, the President in the chair. Judges were nominated for the various shows under the society's auspices, and the secretary instructed to correspond with them on the subject.

A discussion then took place on a question raised by one of the members, as to whether there was any hope of a drone-laying queen ever recovering her fertility. Various members having expressed themselves in the negative, the proposer of the question admitted that there was a possibility of the queen he referred to having been raised since autumn, in which case it was generally agreed that she is now past the possibility of fecundation.

Mr. J. D. Ker produced pieces of comb-foundation taken from the comb of a prize super, and requested the opinion of the meeting. Various members having reported the results of their trials of foundation in supers, and it being evident that occasionally the bees are either unable or unwilling to thin it down, Mr. Raitt moved that it be recorded as the opinion of the meeting that in order to avoid all risk of rendering comb honey objectionable, foundation should only be used in supers as a guide, and no deeper than half an inch. This was unanimously agreed to.

CALEDONIAN APIARIAN AND ENTOMOLOGICAL SOCIETY.

Minutes of committee meeting held in Kenneth's, Blair Arms Hotel, Dalry, on Saturday, 24th May, 1879. Present, Messrs. Aitken, Anderson, Bennett, Ferguson, Graham, James Laughland, William Laughland, Muir, McDonald, Sword, and Wilkie. Mr. James Laughland was called to the Chair. A proof copy of the Prize Schedule for the forthcoming Show to be held at Perth in July and August was submitted by the Secretary, which was approved of. The Chairman intimated that the

Association were now prepared to nominate Judges for the Show. Mr. Wilkie proposed that Alex. Shearer, Esq., of Yester Gardens, Haddington, James Anderson, Esq., of Dalry, and Duncan McDonald, Esq., of Kilwining, be appointed judges of honey. Mr. Muir seconded the motion, and added that if the gentlemen already named consented, it would be hard for the Society to pick out abler and better men. Mr. Bennett proposed that ex-Baillie Laughland, of Kilmarnock, and R. Graham, Esq., of Dalry, be appointed judges of hives, bee furniture, and in the miscellaneous classes. Mr. Sword seconded this motion, which was agreed to. Mr. Sword proposed that J. M. McPhedrun, Esq., of Craigbet, and the Rev. R. Sanders, of Tundergarth, be appointed umpires. This motion was unanimously agreed to. The Secretary was instructed to write to the gentlemen appointed, to obtain their consent to act in that capacity. A vote of thanks to the Chairman for presiding brought the meeting to a close.

ON THE QUEEN-BEE,

With Especial Reference to the Fertilisation of her Eggs.

By John Hunter.

[*Reprinted from the Journal of the Quekett Microscopical Club.*]

(*Continued from page* 14.)

The impregnation of the queen bee was long an enigma to naturalists; some have denied that any intercourse with the male was necessary for the fecundation of the eggs. Some supposed that the effluvia arising from the males within the hive was sufficient for this purpose. Maraldi thought the eggs were fecundated by the drones after they were deposited, in the same way that the spawn of fishes is fecundated: but, from our extended means of observation, we are no longer in any doubt as to the *modus operandi*. From three to seven days after birth, the queen issues from the hive, on nuptial thoughts intent, and after circling a few times round her home, apparently taking its bearings, she flies away into space: if her trip be fortunate, and she meets a drone, they fall together to the ground, where separation quickly takes place, at once fatal to the drone, who parts with his sexual organs, which remain attached to the queen on her arrival home; these quickly shrivel up, and are removed by the workers. In the nuptial act the spermatheca of the queen is injected with the seminal fluid, and, wonderful to relate, this small vessel whose external measurement is but $\frac{1}{20}$ of an inch, contains sufficient material to fertilize all the eggs which the queen may lay in her whole life (for she mates but once), although she may live four or five years, and deposit during this time more than a million eggs. Dzierzon, a highly scientific German bee-master, says, 'Most queens in spacious hives at a favourable season, lay 60,000 eggs in a month, and a specially fertile queen in four years, which she on an average lives, lays over 1,000,000 eggs.' On this authority I make this statement, and I do not think it is an exaggeration. Referring back to my text that 'The act of fertilisation [of the eggs] or not—determines the sex of the future bee,' you may naturally ask how I prove this statement, or that the unfertilised eggs will hatch at all. Professor von Siebold made many most skilful microscopical dissections of eggs, and he affirms that among 52 eggs taken from worker cells examined by him with the greatest care and conscientiousness, 34 furnished a positive result, namely, the existence of seminal filaments, in which movements could even be detected in three eggs, and among 27 eggs from drone cells, examined with the same care and by the same method, he did not find one single seminal filament in any egg, either internally or externally. A phenomenon sometimes occurs in a beehive of a queen laying eggs that produce males only; this for ages had puzzled philosophers, without any satisfactory solution, but if you will bear in mind what I have said, and admit it as fact, the solution is easy. The theory of Parthenogenesis (or virgin breeding) which Dzierzon promulgated in 1845, is said to have explained this phenomenon of the bee-hive as perfectly as the Copernican hypothesis the phenomena of the heavens. The principal points to bear in mind are—that the queen to be able to breed workers must be fertilized by the drone, and that the union takes place only in the air—that drone eggs do not require fecundation, but that the co-operation of the drone is absolutely necessary when worker bees are to be produced—that in mating the ovaries are not fecundated, but the seminal receptacle (the spermatheca) and that the supply of the fluid thus received is sufficient for her whole lifetime. We prove these hypotheses as follows:—Eggs laid in drone cells never produce aught but drones—a queen born with her wings imperfect rendering her unable to fly, or one born after drones are all dead (generally by August), and consequently unable to mate, lays eggs indiscriminately in both drone and worker cells, but all alike produce drones. The verification of this is very easy: we have but to deprive a stock of its queen in autumn, and provided there are eggs in the hive, young queens are sure to be reared, and as surely they will become drone breeders; the experiment has been so many times repeated that the fact is now incontestable. That a queen mates but once in her life. The introduction of the Ligurian bee into England enables us to prove. This variety has the reputation of being a better one than our own native bee—and it is a common practice to import annually from Italy fertile queens, which, by a little skilful management, are made to take the places of the rightful sovereigns in our English hives. The Ligurian bee is gaily striped with yellow bands, and we quickly find the original black bees are dying out, and replaced by the easily distinguished Italians, and while this naturalized queen lives, the bees of her hive are thorough-bred Italians. I will presently dissect out, and display the contents of the spermatheca of a fertile queen, which will exhibit many thousands of the spermatozoa, with their characteristic contorted movements. I will then perform the same operation on a virgin queen, when we shall find the contents of the spermatheca a limpid fluid only, not a trace of the spermatic filaments. My namesake, the great surgeon, attempted to fertilise drone eggs by artificial impregnation from the spermatheca of a queen—he failed with the bee, but succeeded with the silkworm-moth. Dr. Dönoff is stated to have been more successful, and I see no reason why the experiment should at all times fail. Cases sometimes occur, when a hive is queenless, that one or more workers will develope the power of ovipositing; it is reasonable to suppose from their diminutive size and general non-perfection of their organs, that the functions of the drone had not been performed; certain it is that eggs of a fertile worker produce drones only, and in one solitary case, where such a worker came into my hands for dissection, although I found ovaries and eggs, I could discover no spermatheca. It has been a common subject for authors to dilate upon the respect and reverence bees pay to their queen, and the valour with which they defend her. This, although very pretty, I am sorry to say, is all fable. The bees' attention to the queen is solely from interested motives, that is, care for the eggs. A virgin queen receives no attention whatever, no defence is ever offered for the queen. I never hesitate to pick up a queen from the midst of her subjects, to which the bees pay no heed; and in cases where an irruption of strange workers takes place in the hive, the rightful inhabitants will suffer their queen to be seized and ill-treated by the intruders without resentment. A queen is possessed of a sting, but I have never known her use it as a weapon, except in combat with another queen—but it is probably used to direct her ovipositor when in use.

LECTURE ON BEES AT THE WIRKSWORTH MECHANICS' INSTITUTION.—A lecture in connexion with this institution was delivered on Thursday, May 8th last in the Town Hall, Wirksworth, by the Rev. H. M. Stallybrass. Subject:—'Bees, and modern bee culture.' The chair was taken by W. Webb, Esq., M.D., the president of the institution. The reverend lecturer, evidently well up in the subject, created great interest amongst his auditors, and we hope a *resumé* of the lecture will be forwarded for publication.

FLATTERING.—A gentleman offers *5s.* for No. 9, Vol. I. of *British Bee Journal!* 'Unction to our souls,' Who can spare it for ten times the price it cost? Address under cover,—Rev. C. H. G., to Editor.

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be fully and faithfully recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

CONVERSAZIONE REPORT, CORRECTION.

Will you allow me to correct one or two errors in the report of the remarks I made at the Conversazione of the British Bee-keepers' Association on the 16th April last. In the report it states that I tried a plan of my own for ventilation, 'the idea being suggested by the Gordon fire-grate.' It should be 'Galton' instead of 'Gordon.' Further on, 'to get rid of the gases I have a little tin box about 1 inch square and 4 inches long,' the length was omitted in report. The temperature of the hive has been from 55 to 60° during the winter, not 65° as reported. 'To get rid of the gases he had a funnel to within an inch of the top of the hive,' should be to within an inch of the 'bottom' of the hive.—THOS. WM. COWAN.

ANOTHER CORRECTION.

In your report of the quarterly meeting of the British Bee-keepers' Association, I notice two inaccuracies with regard to the representation of the Lincolnshire Association.

At the close of the fourth paragraph on page 8, it is stated that the representatives for Lincolnshire were myself and Mr. Bourne (*sic*), and at the end of the report occurs the passage:

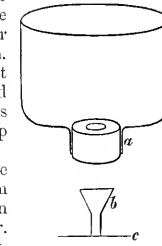
'Lincolnshire was represented at the conversazione by Mr. Godfrey and Mr. Holloway, who are members, and by Mr. Bolton, who came as a deeply interested friend.'

Permit me to say that the gentleman who was deputed to represent the Lincolnshire Association with me was Mr. S. G. Gamble, of Grantham.

Mr. Godfrey, our Hon. Sec., was present, not as a representative, but as a member of the committee of the British Bee-keepers' Association, while Mr. Bolton, who is also one of our acting committee, was present as a friend; I shall be obliged if you will kindly insert this correction in your next.—W. H. HOLLOWAY, *Grantham.*

IMPROVED FEEDER.—OLD FOGYISM.

My feeder, which I illustrate herewith, is as follows: *a*, cork in bottle with a ¾-in. hole through centre, and bevelled inside for plug, *b*, to fit; *c*, piece of wire fixed to plug to prevent plug falling into bottle when placed upright to pour in the syrup: *b* projects ⅜ in. below bottom of cork, so that when placed on perforated feeder the projection forces the plug up, and the syrup comes out of the feeder.



A straw skeppist some twelve or fifteen miles from here, whose name I have seen in 'ours' in connexion with Mr. Pettigrew, has two stocks left. He had twenty-five to thirty large straw skeps, fitted in boxes with covers, &c., all complete. Had he taken in our *Journal* I venture to predict that instead of two he might have had near 200 stocks, instead of an ever-dwindling apiary. The *Journal*, reminding us so courteously every month, prevents us forgetting that in the spring hives and supers are wanted, and must be ready, and in autumn feeding and packing up for winter must be done early. My stocks have wintered well with quilt. I trust that this inauspicious spring may soon be compensated for by a glorious and successful summer for our pets.—J. T. MOORE, *Macclesfield.*

AN IRISH BEE-KEEPERS' ASSOCIATION.

If there is any hope of an Irish Bee-keepers' Association, I wish to become a member; and I think I can get a few others; although I cannot take an active part in it (public) except at the annual show. Please let me know if there is any hope. I have invented a box for queen fertilisation; if I succeed I shall let you know.—CO. *Galway.*

[We shall be very glad to receive the names of bee-keepers who will give help in forming an Association, as above indicated; or if a few will join hands and elect an Hon. Sec. (*pro tem.*), we shall be glad to give publicity to the movement. There are probably many on this side the Channel who would assist in creating such an Association, and they may rely on ready help if the affair be started.—ED.]

THE QUILT.

I am inclined to think that three or four pieces of thick printed drugget for the quilt make it too thick, as there is always much moisture on the floor-board in one hive, which is not the case in the other that has house flannel for a quilt. My hives (glass ones) had no protection all the winter, except shutters which did not fit close, and the entrance was not contracted. I changed the floor-boards once after the snow had gone. The one with thick

quilt was wet and rather mouldy. I thought the pieces of coarse striped sheeting, which is laid firm on the frames, might not be sufficiently open, but it appears to answer well on the other hive, so that it cannot be that.—G. T., *Bishop's Stortford.*

[The quilt should not be of greater thickness than the warm vitiated air can pass *through*. If it be too thick its upper strata may become too cold, and the vapours condensing therein, may possibly freeze, which would render matters much worse. Porosity, securing ventilation without draught, is the desideratum, and perfect ventilation *above* the quilt is indispensable.—Ed.]

CATCHING BEE ENEMIES.

Last year, when down at Dartmoor fishing, I left my rod for a few minutes stuck up on the bank, and on returning was surprised to find two swifts, one on each hook. I have been thinking that this would be a good way of catching the tomtits, &c., which annoy the bees so much.—A. P., *Weston-super-Mare.*

[Tomtits do not catch bees on the wing, and even if they did ten times the mischief they do, we could not bring ourselves to angle for them. Poor things! subservient to man, we would make examples by suspending those killed sharply by Baden hail, but to let them dangle alive! the thought causes a shudder.—Ed.]

WINTERING.—SPRING FLOWERS FOR BEES.

I have managed to winter safely my eight Cheshire hives. Having tried both with and without the quilt, I think it right to say that during the past trying season the hives with the quilt have done well. It is the first winter in which I have not lost a stock. I left seven of them strong with comb-stores and bees last autumn, and have not had to feed any of them. Every few days I have lifted the quilt, and, finding sealed stores, I was satisfied to treat them with a little *wholesome neglect*. I never reduced the number of frames all through the winter. Only once did I see dead brood brought out. As well as I could judge it was a little outlying patch that was, in a very cold time, deserted. The hives did not entirely escape free from mould on the combs; but, in two cases, it arose from the wooden covers not being water-tight, and so the rain got through. The eighth hive was one your junior made up by uniting two stocks of bees out of the hives with foul brood. They made about eight combs. They got a fair amount of stores, and have never been without sealed food; but, occasionally, I have fed them up to this month, and they are doing well, not making more comb, but taking in pollen and increasing in numbers.

Aubrietia I find the best of all spring plants for bees. Mine have for four or five weeks haunted the plants with humming as strongly as though swarming. I have a good deal both of arabis and myosotis, both of which they frequent, but nothing like the way they visit the aubrietia. With fine warm weather, I think appearances promise well for my bees. Yours are, I hope, prospering.—J. W. P., *Godalming, May 18th*, 1879.

WINTER EVILS.

I much regret that I was prevented attending the Association's meeting on the 16th April, as the subject then to be discussed, 'Abdominal distension, its cause and remedy,' is one which must be of great interest to all bee-keepers, especially those who like myself have discontinued the use of the straw skep and have had recourse to early stimulative feeding as the most effectual way of securing strong stocks, and therefore full supers. As a unit among greater and more experienced bee-keepers, I must admit my indebtedness for much valuable instruction from your own pen in the *British Bee Journal*, and quite agree with you that late feeding is a mistake, because in the majority of such cases the poor bees are unable to keep the temperature of their hive sufficiently high to evaporate the water from the syrup, it therefore remains unsealed and in that state is almost sure to ferment, causing dampness on the surface of the combs; and if it should chance to be just above the brood-nest, the bees themselves become saturated; the poor things in cleansing each other, or in the endeavour to clear their combs of the sticky matter, become gorged, and being in most cases unable to leave the hive become affected with the disease. Spring stimulative feeding, if carried on much above the daily wants of the hive, has no less a tendency to generate this disease, and from the presence of large numbers of partly developed bees the disease is often spread to them. While the population of the hive is decreasing from the effects of dysentery lots of bees having arrived at the natural length of their lives, and dying out, the hive is left much below its proper warmth, the larvæ, &c., not unfrequently die in large numbers and thus lay the foundation for that most fatal of all diseases 'Foul-brood;' I therefore see clearly the strongest reason for adopting the plan you always advocate of *gentle stimulative feeding* in spring, if feeding is resorted to at all. Another cause of dysentery among bees, and one which I have no recollection of seeing hinted at, is the jarring caused by rain, hail, birds, or violent winds, and in some cases the rubbing of a bough on the wooden top of a hive; this, whether it occurs in the winter or spring must alarm the bees, and we know that the first thing after they are disturbed is that they go to their food, where under this alarm they gorge far more than they would in the natural way, and the season being in many cases unfavourable for a cleansing flight, I argue that this may cause dysentery in a hive if often repeated, as much as injudicious feeding. Before now I have had a hive or hives exposed to this jarring process and have found them far more disposed to the disease than others more favourably placed; I also notice that such hives in the summer are more spiteful, and this may perhaps have been noticed by other apiarian friends. I do not suppose many of my readers would like to dispense with the tasteful tops of their hives, but I would suggest some of them either using a strip of roofing felt or other elastic material between the top of hives and the roofs, I believe their bees will be more healthy in

winter and more civil in summer, as they will not feel the rattle from wind and storms nearly so much.—WILLIAM HUNT, *South Warnborough, Winchfield, May 1st*, 1879.

THE SEASON.—COMB FOUNDATION.

We have arrived at May 7th, and the weather is more like Christmas than May—cold and stormy, with heavy showers of snow. I am always feeding the bees, as they are getting very little out of doors, and there is little to get when they can get out, and they are still partaking of the pea-meal. My stocks have wintered well, six in bar-frames and two in straw skeps. They gave me a very good return last year. I will give you an instance of one—a small straw skep. On 11th February last year when I examined it, I found it had sealed brood, and knowing that they were short of both honey and pollen after the wet summer of 1877, I made some syrup, and, after boiling for a time, added as much peas-meal as I thought sufficient for the quantity of syrup and let it boil for a few minutes longer, and fed with the same until I could give artificial pollen outside. I artificially swarmed it on 14th June,* and put the swarm into a bar-frame hive of ten frames. I gave them a good start, having five frames filled with empty comb, and filled the other five with impressed comb-foundation, put into the hive alternately. In the course of ten days it was full of brood and honey. I then put on supers (2lb. sections), and received 52lbs. finest super honey. Also extracted about 15lbs. from body of hive, and, without any fall feeding, it has pulled through the long severe winter, and is at present in fine condition. So much for artificial swarming and impressed comb foundation.—D. RAMSAY, *Biddlovie*.

THE SCOTCH BAR-FRAME FEEDER.

It was self-evident that Mr. Cameron could not be satisfied with the exposure of his pretensions which I gave in your number of November last, but he need not have let the whole world know it. His addendum in your last was equally unnecessary, as when a man claims an invention as his, he means that the idea originated with him. It is surely strange that Mr. Cameron, prior to his letter in October, when we were on intimate terms and frequently in each other's company, never once hinted at this claim of his. A mutual friend first told me of it, and I scarcely believed him. The same friend, seeing how matters were tending, proposed in July last an arbitration, with a view to the settlement of the question; Mr. Cameron positively refused. When the said party heard from me that I was going to exhibit at Dumfries, he told Mr. Cameron and recommended him to send one also, so that the very challenge which you say took place at the last meeting of the British Bee-keepers' Association, might be made by the production of the two articles; Mr. Cameron still refused. I exhibited and got the prize, and was duly gazetted by yourself and others. You may guess my surprise when Mr. Cameron, in the following number, without a hint to me direct or indirect, issued the letter which virtually accused me of being an impostor. My reply should have settled if it did not satisfy; he was again approached after this with a view to a possible reconciliation, and with my approval offered arbitration. He insisted, however, not only on choosing the arbiter, but also dictating the mode of arbitration, and the matter took end. He vaguely hints at this in his letter, and because I did not agree to this, he says I am not '*game*.' He is quite correct, and I have no wish to be made game of. He has found out this already to his cost, and I hereby warn him that I will not submit to be shot at from behind a hedge. If there is to be arbitration, it must be according to the ordinary practice among civilised nations.—D. PATERSON, *Strwan Station, May 15th*, 1879.

* It also sent off two after swarms, one on the 17th and one on the 27th June.

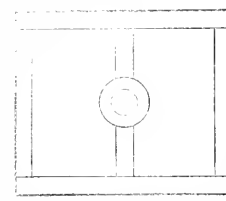
THE BAR-FRAME FEEDER.

I feel obliged by your bringing under the notice of the British Bee-keepers' Association the Bar-Frame Bee-feeder.

The objection made to it is one which I fully anticipated, but do not find that it is borne out by experiment, as the heat of the hive is so easily transmitted to the tin and keeps it. I find, however, that they are better and cheaper made of wood, the main drawback being the difficulty of nadiring the wood at all points impervious to air which is essential to its working. I am still improving and trust yet to make it perfect. Weather still cold, we had snow and frost this morning, wind still from the north-east, and bees seldom out of doors.—D. PATERSON, *Strwan, May 15th*, 1879.

FEEDING WITH QUILT ON.

In reference to article on feeding through quilt, I arrange mine thus:—A wooden frame to put on top of hive, bar across with circular piece with hole in centre. Cover underneath with piece of tammy, and lay pieces of carpet or baize cut to fit each compartment at top.—T., *Tulse Hill*.



A GRUMBLE.

'Sow and plant seeds for flowers and bees and prevent the growth of weeds about the hive don't forget to send your subscriptions to the *Bee Journal* if any further information &c.'

Take away the points from the above, and it will be rather amusing reading. Be all this as it may, I owe something for *Journals*, which I may be able to pay when I know what it is,—not out of bees,—

oh, dear, all dead in the bar-frame hives all alive in the straw, and should like to find a customer for all my wooden boxes. I shall go back to my grandmother's mode of keeping and killing bees, profit and account, if time and cost of feeding were reckoned. What! 'all honey must be the produce of his own hives,' what bosh! when they have been fed on sugar half the year or more. Begin bee-keeping with a strong swarm or more if necessary, to have a continuance made safe. Next year keep the first swarm, and destroy the old one, if a second swarm follow soon on the first and is heavy enough to live the winter keep it, or else destroy it with the old one. After the old stock has thrown the first swarm, and honey-making is good, enlarge the old hive by nadiring, and in a good season you have a good lot of honey *all profit*: brimstone cures all dysentery, foul-brood, and every abomination brought about by keeping old stocks.—J. C., *Brentford*.

FOOT-POWER CIRCULAR SAWS.

I consider it a duty to bee-keepers who may be thinking of purchasing one of the Circular Saws offered in Scotland, to advise them to agree carefully for one that will stand the jar of work, without much extra expense for new parts before it will properly go, and further expense, bother, and loss of much time to keep it going after getting it into work. I should pity any bee-keeping friend who might be troubled with such a 'loose' one as was sent here. —J. Verrier, *Salperton Park*, 19*th May*, 1879.

COMB FOUNDATION IN SUPERS.

I think you might profitably advert in your next *Journal* to the question of using foundation in supers. I have probably had more experience than most in this, and the result is that I am more and more convinced that the less of it there the better. At certain seasons large sheets will be worked so thin, that no one can tell it from natural comb. But when honey is a *glut*, and also late in the season, *when the temperature falls*, many combs will show the objectionable 'herring-bone.' In the former case, it seems that the bees being gorged with honey, and therefore all so secreting wax abundantly, neither have time nor desire to utilise the least particle of the wax given them. In the latter case, the falling temperature hardens the wax and renders it less easily worked. I always find those guides which are worked out by the bees *before honey is coming in* to any great extent, the nearest to natural comb. They seem glad at that time to get such a job to do.

I would suggest also that judges at coming shows should make it a *point*, that super honey should show no trace, or as little as possible, of the foundation. Looking through the comb against a strong light will generally detect anything wrong, but if suspicion exists, the *knife* will tell the truth. You will observe from my printed directions that I have led the way in urging only small guides in supers—an inch or an inch and a half. Many of my friends, against my entreaties, used three inches of the *yellowest* last year—so that, interested as I am in the sale of foundation, you may see that I am at least as anxious to keep our British honey above suspicion and without fault.

I may, perhaps, write you a short paper on *Bees-wax* shortly, a subject too little referred to, and yet of very great importance to bee-keepers and others. I have bought and sold large quantities in a raw state during the last year, and some very strange tricks have been discovered.—W. Raitt, *Blairgowrie*.

QUEENLESSNESS.—BEES REFUSING TO MAKE QUEEN-CELLS, &c.

Last autumn I introduced a Ligurian queen into one of my bar-frame hives, and the bees seemed to take to her all right; but this spring I find them queenless, so a week ago I took a frame containing brood in all stages and put into them (there were lots of bees to cover it, and a couple more combs). I expected when I looked to-day to have found queen-cells started; there were lots of young bees hatched and hatching, but no fresh queen cells. To-day I have put in a second comb with a nice lot of brood and plenty of new-laid eggs. I hope I shall have better success this time—can you tell me why they have made no attempt to raise queens from the first lot? Is it possible they may have a queen amongst them that does not lay at all? How old do you consider bees are before they begin to fetch pollen into the hive? My own observation leads me to suppose that that they come out of the hive and fly abroad for three weeks before ever they begin to carry pollen into the hive. From having introduced Ligurians I have had a good chance of observing it both last year and this. We have only had two half days this last fortnight fit for bees to be out.—Henry Yates, *Grantham*, *May 10th*, 1879.

[We have often stated, as the result of observation, that *old bees* will not raise queen-cells, and this experience strengthens our theory that they are incapable of forming the necessary *pap* for the development of queens. The duty devolves upon young bees, and, doubtless, when sufficient have hatched from the newly introduced combs, the work will proceed in proper order. It is scarcely likely that they have a non-laying queen, and it is fortunate that a fertile worker has not developed in the hive, or great difficulty would be experienced in re-queening the hive. Young bees that have no brood to attend to, as in the present case, after they have sealed over that last given, go to work in a very few days; but in a thriving hive they have home duties to perform, and seldom do more than play at the entrance front until they can be dispensed with within. Pray make the present a case for careful observation, and kindly report for others' benefit.—Ed.

BEES DYING (POISONING?)

I have had a strange affair come under my notice, which is as follows. A strong hybrid stock in my apiary daily throws out 200 or 300 bees, not dead, but unable to fly, and they crawl about in front of the hive until they die. At first I thought they were only turning out the old bees, but they are of all ages, from very old down to the youngest. On examining them, I find they are bloated, as it were, as if they had been unable to ease themselves. I

do not see how it can be put down to dysentery—the hive has been perfectly dry all the winter, and not a speck of dampness on either the quilt or combs; neither is there any stain in or about the hive as with dysentery. The brood is perfectly sound and healthy, and the young bees hatch out as in the ordinary course of things. The hive is a nine-frame Woodbury pattern, and the entrance is from three to four inches wide. It is no use returning the fallen bees, as they are turned out again immediately, and the ground in front of the hive presents a mass of crawling bees, unable to rise on the wing. The finer the day, the more are turned out. They had sealed honey until the end of March, and have been fed from the middle of the same month till now with the ordinary sugar syrup. Perhaps you may be able to explain and give a remedy.—A SUBSCRIBER.

[A similar case to the above occurred some years ago, which was duly recorded in the *Journal*. It was then supposed that the bees had access to some poisonous plant, or had partaken of food poisoned probably by accidental contamination.—ED.]

QUEEN EXCLUDERS AT HIVE ENTRANCES.

'BE WISE IN TIME.'

I often read with pleasure and profit your replies to Queries in *B.B.J.* I should like to have written over your reply to Query No. 309 in May *Journal*, the old saying, 'Be wise in time.' And as a note of warning to many I should like to give a fact which came under my own observation last spring, fully bearing out your practical observation on the subject. A friend of mine last May had three most splendid stocks in large straw hives, floor-boards having 3-inch entrances grooved out. Leaving home one fine morning he was afraid of their swarming during his absence, thought at once of what seemed to be a 'good idea,'—not one of your 'new ideas,' exactly. It was to fix a piece of excluder zinc at the entrances outside—just the thing—and no sooner thought of than done. 'Capital, capital!' said he, 'I can now leave home without "swarms on the brain" all day long.' Returning home at dusk, horror of horrors! a large black living mass at the entrance of each hive, and half way up and all around it. Nor was this all, for all the beautiful large combs so heavy with advanced brood and honey, and softened by intense heat and suffocation within, had broken down, so sure enough down came 'cradles, babies and all.' It was a melancholy affair; I helped to make the best of things as they were. It was a delightfully fine day, and the bees had gone out in large numbers, when those within found themselves partially imprisoned, and not being able to make exit fast enough, the panic began, and being aggravated from without by the numbers returning laden, and clamouring to get in, the temperature rose frightfully, and suffocation sealed the doom of those within. Never have I seen such combs of brood, as we found in clearing up the *débris* next morning, transferring what we could to bar-frames. It was also distressing to see under each floor-board a considerable heap of pretty coloured pellets of pollen. Again let me say to readers of our *Journal*, who may not think of what might happen, 'Be wise in time.—ISAIAH GADD, *Wokingham*.

QUEEN FERTILISATION, FLIGHT, AND OVIPOSITING.

Your reply to my inquiries in this month's *Journal* is certainly a conclusive one, though why the matter has hitherto been written of in such a hesitating manner is puzzling. For example, in last paragraph but one, in leaflet 'Bees,' where the terms 'on which doubt rests,' 'it is generally said,' &c. Several writers do not even guess at this. I now crave further knowledge. Given average good bee-weather—on that day from the day of hatching does the virgin queen take her short flight, and is it before or immediately after the exit of first swarm? A second natural swarm may be looked for in nine days; at what age does the next virgin queen take her flight? Do drones emerge with these virgins, and at what age does the queen begin to lay eggs?—F. P.

[The leaflet 'Bees' was originally published by the 'Science and Art Department,' South Kensington, and in our opinion was so pithy a *resumé* of the natural history of the honey-bee, that we begged permission to re-publish it, as a leaflet. The writer is evidently 'a compiler,' and not a practical hand, hence his 'hesitation,' for which we are not responsible. Replying to your further 'craving' for knowledge, we would say that the young queen under the conditions named would probably leave the hive on the third or fourth day of her life, and would commence ovipositing on the sixth or seventh. Young queens do not exist (normally) until seven or eight days after the first swarm has left the hive, and on the ninth day after one or more leaves with second swarms. It then becomes a question of bee-expediency,—if the bees do not intend to form more colonies, swarming ceases and all other queens saving the one which will reign will be destroyed. If swarming be continued, they may issue daily until the supply of queens becomes exhausted, or a lot of little swarms may come off simultaneously, each young queen having only a handful of attendants.—ED.]

CHEAP HIVES.

You will remember you made me one of your commonest Cottager hives at 4*s.* 6*d.* last spring, with eight large-sized frames, and fixed bottom. I wished to give the simplest and cheapest hives a fair trial. The sides of the hive are barely half-inch deal boards. The cover was slightly broken in transit, so that it did not even shoot the water well off the sides. I put a swarm in this hive on the 1st of June last, and fed it for a week, as the weather was indifferent. In a month the swarm had filled the hive with combs, and very fairly garnished them with honey. At the end of August I took away one comb containing about 7lbs. of honey for consumption, and replaced it by a dummy, and shut the hive up for good, not touching it before the winter. It, therefore, contained seven frames, pretty well filled with honey, and lots of bees. The weight of the hive I took, and satisfied myself that it was sufficient, but have no record of it. The only thing I did afterwards was to paste one

fold of brown paper round the walls of the hive. Further than this, it had no protection whatever during the whole winter, and it stood on a stand in the open garden.

The winter has been quite as severe as anything you have had in England. A careful register of the thermometer gave the following average temperatures:—

	November.	December.	January.	February.
Maximum	43·7	36·4	38·0	43·7
Minimum	34·1	26·6	29·1	34·1

We had fifty-two days of frost in December and January, and on ten days the thermometer fell below 20° Fahr.

I opened the hive to-day for the first time, as the weather has been so cold all the spring. I found every frame cram to the full with sealed brood, and still a little old honey in the hive. The hive is full of bees, dry, with no dirt on the floor-board; and when I had removed all the frames and shaken the bees out of it I could really find nothing to clear away. It would be impossible to see a hive in more satisfactory condition. Further than I have recounted, I really have done nothing to help it. I added to the thickness of the quilt by a bit of old carpet, and latterly only I have put a bit of old drugget over the hive, as I feared the brood I knew it contained being chilled during the cold nights we have had lately in the spring. All winter it stood in the open air with nothing over it. I would not draw general conclusions from one instance, but for myself I am satisfied from this example, that the cheapest form of hives you send out is capable, as it is, and without further expense, of preserving a colony of bees through a severe winter, and a more than ordinarily severe spring; and my own belief that what enables the hive to do this is *proper ventilation*. This proper ventilation is insured by the quilt. Bad ventilation causes humidity in the warmest hive; and it is humidity in the hives, more than dry cold, that kills our bees in winter. Towards the spring, when the brood is coming on, warmth is, however, absolutely necessary. I may add that I have not seen a hundred dead bees before this hive since last October. As after all, the possibility of bar-frames being made available to the poorest bee-keepers should be our main object, I think a carefully conducted experiment like this is not without interest.—G. Pearson, *Nancy, France.*

A BEE COMPANY.

I have started a big bee company, and we intend commencing this year with 300 hives. Our head-quarters will be East Brent, whence the hives will be moved in the autumn for the heather, to the large peat moor between Highbridge and Glastonbury. If you mention it in body of *Journal* I shall be glad, if you will also say that we are attempting to start a bee show at Weston again (Weston-super-Mare). The last show, owing to a falling off in the subscriptions, left nearly 20*l.* for the secretary and others to make up, and we were unable to send out the medals promised. We have had a meeting, and from the promises received, we hope soon to send out the back medals and have a good show this year.—Obed Poole, *Weston-super-Mare, May 22nd*, 1879.

IMPORTANT SALE OF BEES AT DALRY.

After the trying winter, many of the apiaries in Scotland have suffered, and it was with joy many proceeded to Dalry on the 24th ult. to Mr. James Anderson's sale, a tried bee-keeper, who was only parting with his excellent stock on account of a new situation calling more upon his time. It may be remembered that this gentleman went to London on the occasion of the first show in 1874 at the Crystal Palace, and carried off the first prize there, astonishing our friends across the border with his beautiful Stewarton boxes.

The following was the order of sale and prices realised in less than forty minutes:—

No.	Kind.	Wt. lbs.	Price. s. d.	Buyer.
1	Cross of yellow queen	25	39 0	Mr. Alexander.
2	First cross of yellow queen, 1878		40 0	,, Wilkie.
3	Young black queen, 1878...	33	42 0	,, McArthur.
4	Black queen of 1878	42	59 6	,, Bennett.
5	First cross of yellow queen, 1878	24	37 0	,, Wilkie.
6	Top swarm black queen	21	40 0	,, Ferguson.
7	,, ,, ,, 1877 ...	23	33 0	,, Sword.
8	Second cross of yellow queen, 1878 ...	27	40 6	,, Sword.
9	Cross of black queen, 1878	32	41 6	,, Bennett.
10	Top swarm cross of yellow queen, 1877	23	43 0	,, Ferguson.
11	First cross of yellow queen, 1878 ...		43 0	,, McDonald.
12	Stale Black queen, 1877	30	42 0	,, Muir.
13	Pure Ligurian, a beautiful queen ...		48 6	,, Bennett.
14	Black queen of 1878	23	39 0	,, Bennett.
15	Cross of yellow queen	26	44 0	,, Ferguson.
16	Black queen of 1877	30	40 0	,, Bennett.
17	Pure Ligurian queen, 1878	32	66 6	,, Bennett.
18	Cross of yellow queen, 1877		42 6	,, Bennett.
19	,, ,, ,, 1878		43 0	,, Robertson.
20	Cross of black queen, 1878		33 0	,, Ritchie.
21			38 0	,, Bennett.
22			36 0	,, Wilkie.
23			12 0	,, Bennett.

Total Amount.

	£	s.	d.
Mr. Bennett	20	12	6
,, Wilkie	5	13	0
,, Ferguson	6	7	0
,, Sword	3	14	6
,, McDonald	2	3	0
,, Muir...	2	2	0
,, Robertson	2	3	0
,, Ritchie	1	13	0
,, McArthur	2	2	0
,, Alexander	1	19	0
	£18	9	0

NOTES FROM MY DIARY.

Feb. 6th.—Examined hives, found all very healthy and strong, with plenty of sealed comb except in No. 3, where there was not much food left. Fed ditto. (No. 3 was a second swarm, taken in July last.)

March 1st.—Began to feed all hives, so as to promote breeding, and placed out Artificial Pollen on every fine day, which they took freely.

March 8th.—Examined hives, all very healthy, with plenty of sealed comb left. Gave clean bottom boards to all hives.

April 1st.—Left off feeding, except with A. P., each hive having taken about 2lbs. of barley sugar and syrup, (at 3½*d.* per lb).

April 9th.—Bees began to refuse A. P.

April 14th.—Weather very cold and wet; gave a little food to all hives.

April 26th.—Left off A. P.

April 28th.—A few drones flying.

May 22nd.—No. 1 hive swarmed into a dead hive belonging to my man—(My man wintered three black stocks in straw hives, but two of them died in the spring. He left these hives on their stands, and it was into one of the e that my bees swarmed.) The swarm was headed by an imported queen; therefore his greater gain and my greater loss. They must have gone off straight to his hive without settling, otherwise I might have seen them. My other hives are all very full, and I hope to get all my first swarms off this week, and then I shall begin to super. Your correspondent, 'A London Bee-keeper,' expressed a wish in the February number of the *British Bee Journal*, that he should like to know how my Ligurian stock (the

one he took an interest in), would be off for drones in April and May. They have a fair number, but not too many, and will probably swarm to-morrow, as they are now hanging out quite thickly.—Captain C. A., *May 23rd.*

BEE-KEEPING MADE EASY.

By a Cottager.

(*Continued from p.* 25.)

When I say leave your hives alone, I don't mean that you are never to look at them, but, on the contrary, make yourself sure that the bees are there, and alive and well. All this can be ascertained without stirring the hives. Make the bees accustomed to your presence, and the moment you go amongst the hives they'll come out to greet you. The following facts will illustrate a good many bee-keepers. Farmer Giles lived a short distance from my homestead, and in the summer of 1870 a swarm escaped from one of his best hives. He followed in pursuit about two miles across country till the bees alighted on Farmer Jones's land. The latter would not give up the bees to the rightful owner, but hived them himself and set them apart in his garden. The bees went to work, never heeding the quarrel, and very soon stocked the hive to repletion. All went well, and the bees were nicely located in their winter quarters, 'secure and free.' In dull November Farmer Giles, being aware of his loss, hastened by stealth to Jones's garden, placed an empty hive upon the stand, securing it as its former occupant, and carried his favourites away in triumph. It was far away in the summer of 1871 when Jones discovered that he had bought but an empty hive, and he wondering all the time why his bees were not swarming. It often occurs to me how a good many people are able to have bees at all. They'll begin bee-keeping this year, and next year go about performing feats with their bees that end in ruin to themselves and their pets. When they fail, they get disgusted. It takes a good deal of time and patience to surmount difficulties, and become a successful bee-keeper. I think during all your operations it is better to be guided by common sense. One night on my return from work, during the month of April, my wife complained that the bees were robbing her hive (for so she called the rescued sulphurites). I said, 'I'll soon remedy that.' To work I went, erected a stand, placed empty hive thereon, got a couple of shallow plates, put used-up tea-leaves thereon, and poured in a good supply of syrup; and next night, on my return, I learned that this had the desired effect; so I continued this for some time, and even the bees in her own hive came to taste of the sweets made as follows:—4lbs. best lump sugar, 1 quart water, when boiling put in 1 glass vinegar from own plant, half glass brandy, boil all 10 minutes, and bottle.

On April 25th I purchased an additional stock (skep). I was carrying it in a cloth when the part I had hold of slipped, and down went hive and all with a smash on the sod. I grasped end of cloth, and held it again firmly, hive and all under my arm. I felt that three of the combs, bees and all, were lying in a lump on the cloth. The bees made dreadful roaring, but I got them home, placed them upon the stand, pushed up the combs (through cloth) into their places, and then opened the cloth, leaving all so for the night. I got up early next morning, and prepared two skewers to thrust through the combs to support them, and called out wife to pull out cloth when I'd lift up hive. I lifted up the hive, she pulled out cloth, when lo, and behold! the bees themselves had made good all breaches, and this saved me trouble of skewering. The bees being in strange quarters on their return laden with pollen alighted on boards of other hives, out came the sentinels; and just as fight was about beginning, the housewife brushed all off with a switch, and every one returned to its respective quarters, and all was peace and quietness after two days. I shall tell you next time how to create market for bees and honey.—J. Traynor, *Tinahely.*

(*To be continued.*)

AFTER FOUR YEARS' EXPERIENCE.

I received the vulcanite, and am obliged to you for forwarding it so promptly. I send you enclosed a P. O. O. and stamps in payment of that account, and of my subscription for the new volume of the *Journal* now due. This will be the fourth year that I have had the *Journal*; and I may say that I do not regret the money spent, as I consider that I could not in any other manner have acquired the same knowledge of managing my bees. From the books published doubtless much may be gained; but at a time when so rapid progress is being made as now, books are soon left behind. And besides the timely information of the *Journal*, it is, as it were, the stimulation of the bee-keeper, inciting him to early and vigorous work—frequently as necessary and useful to him as to his bees. My five or six years' experience in bee-keeping affords hope to beginners; for I started without the faintest practical knowledge of the subject, my sole inducement to do so being the sight of a rustic picture of a range of hives under a wall, which I met with in a book upon garden management, to which was appended a concise, but most interesting, account of bee-keeping in various countries. I had never seen a swarm taken, and always took care to give any hives I came across a wide berth. Also, I am not a very bold character (although I can manage to screw my courage up to the sticking-point when required), and I soon found myself getting dreadfully flustered at very inconvenient moments. I have the disadvantage, too, that a sting makes a terrible example of me. Modern hives were no more known in this locality than Cetewayo; and although I got some assistance from a bee-keeper of over twenty years' experience, as much in love with his bees as the Irishman with his pig, he had no more notions of modern appliances than the Man in the Moon—assuming that that gentleman has none (although more may be known about bees in that lunar region than we are able to give credit for). Now, I am not a bee-leaver in the old style,

and have no rooted objection to progress, and I have consequently tried my hand at most of the improvements recently introduced, and can now manage any of the necessary operations with success. I have wooden hives of various kinds, and have supered, extracted, transferred, united, and Ligurianized. I remove my bees to the heather in the autumn, and stimulate with syrup and pea-flour in the spring; and, as the result of considerable experience, I can support those who hold that the new system is the more profitable, as well as the more humane—and this in a district where thirty pounds per hive is considered the *ne plus ultra* of a honey harvest.

Before concluding, I will offer one or two suggestions which may be useful to those of your readers who are beginning bee-keeping. It is a capital plan always to use a *veil*. One may feel proud to do without it; but, after all, whatever one's skill or coolness, accidents will occur if this precaution be neglected—and it is neither pleasant nor polite to look at people with one eye open and the other significantly closed, and it is the reverse of encouraging.

Next, as to *Hives*. Abbott's Standard is the best. The Cheshire hive is an excellent one, and will give satisfaction; but Abbott's is more efficient, and easier to manage, and *better to imitate for those who wish to make their own*. For the latter purpose I prefer one without legs.

Pea Flour.—The best way I have tried of administering this is, to place an old skep full of comb in the spot where it is intended to stand the box containing the pea-flour. If it contain no honey a little syrup should be run into the combs. If this be done on a warm day the bees will crowd into it, and at night the box may be substituted for it, and on the following day they will find pollen instead of syrup. Robbing will not be encouraged, but rather diverted, if this be done at least ten yards from the apiary.

New Feeder.—Although you kindly sent me the vulcanite at once, I was put to a strait for want of it, and it occurred to me to improvise a feeder made of a piece of blue slate, by boring a small hole through it with a fine bradawl, and it answers capitally.

My bees have come through this remarkable winter very well; but I have noticed more dysentery than usual—perhaps due to my leaving them too long upon the moors last autumn.—J. J. Hounsfield, *Hackenthorpe Hall, near Sheffield*.

SINGLE AND DOUBLE-WALLED HIVES.

The question whether double-walled hives have any practical advantage in our climate over single-walled ones is of great importance; for if a dead-air space is necessary for protection there is an utter barrier to the introduction of bar-frames among cottagers and working men.

A double-walled hive costs at least 25*s*. to 30*s*.,* while a thoroughly good hive made of inch wood can be bought at from 7*s*. to 10*s*. Perhaps, in the old days of wooden crown-boards a single thickness of wood was not sufficient protection; but with a quilt, or other warm ventilating cover, on the top of the frames, I believe that an inch thickness of wood is all that is required, and to pay three times the price for a double-walled hive is simply throwing away money. Although several writers recommend a dead-air space, I have never read any complaints of a single thickness of wood being found by practical experience to be insufficient; but if any one has such experience, I hope he will come forward, in order that the question may be fully discussed.

My hives are made of inch deal, painted, Fuggle's pattern (Abbott's Standard Frame only two inches shallower.) They were all fairly strong in the autumn; three had driven bees added to them. The loss during the winter was as follows:—

No.	Oct. 20, 1878. lbs.	Feb. 27, 1879. lbs.	Loss. lbs.
1	35	27	8
2	60	48	12
3	38	27	11
4	35	28	7
5	35	30	5
6	35	27½	7½

No. 2 is a large straw hive.

The loss of bees during the winter was very small. At the present time they are all strong and actively breeding, and have been some time. The past winter has been as severe a test (as far as regards cold) as we can ever expect to have; and unless it can be proved that double-walled hives are advantageous in mild winters or warm weather they must give way to simpler and cheaper hives. I have used on the top of some of my hives a light frame, two inches deep, covered with cheese-cloth and filled with sawdust, or, preferably, wheat-chaff (not straw-chaff). I prefer it to the quilt, as it is warmer, and never gets sodden with moisture. It is, however, not so convenient for feeding.—A. W., *Hereford*.

* Not strictly correct, as Abbott Brothers No. 1 and 10 are 12*s*. 6*d*., and 5 and 11, 14*s*. each only.—Ed.

BEE SOCIETIES.

Since the advent of the *British Bee Journal* bee-keeping in this country has got such an immense impulse which has already established it as an important branch of rural economy.

Those who kept bees before now manage with increased pleasure and profit, and hundreds who never dreamt of having bees are going into the pursuit with enthusiasm. Since the formation of the British Bee-keepers' Association bee societies have sprung up all over the land and are yearly increasing in numbers and importance. All those societies have the same aim, viz., the encouragement of practical bee-keeping. Every new society has its own code of rules framed according to its own ideas but with some similarity in them all. They have all been more or less successful in their object, although not altogether financially prosperous. I see the Caledonian's balance is on the wrong side of the sheet. Pity 'tis so, for want of means is a serious block to any undertaking. The parent association seems to be a thriving colony in this respect since it got rid of the *foul brood*. The East of Scotland has all along kept up its stores, although it has promoted more local shows than any Society extant.

The English County Associations are all in a flourishing

condition and yearly increasing in numbers and importance.

There is a certain amount of rivalry between all the societies which so long as it is legitimate is healthy and does good. Let the truth, however, be told, there is far too much envious opposition between them. Some are also conservative, and do not wish to progress with the times.

Among the individual members there are too many petty jealousies, angularities, and trivial misunderstandings, which are neither good for themselves nor for the societies with which they are connected. There is, in short, a want of mutual forbearance which ought not to exist. Why should this be so? The aims and objects of all societies are similar—the encouragement and advancement of humane and profitable bee-keeping.

The *modus operandi* of the moveable comb principle and section supers to attain this object is rapidly extending, and will be adopted in a short time, a few years at most, by every class and every individual worthy of being a bee-keeper. There are a great many bee-keepers everywhere who will not join a bee society because they don't see any good in doing so. Let such glance at the history of any bee society in the kingdom, and they will get practical proofs of the amount of good they are doing. Let them ask the Secretary of any society, and he will soon convince them if facts will do it. Others, again, are so stingy they will not join a society, because a paltry half-crown or five shillings a-year bars the way. Many of those who are members and enthusiastic bee-keepers are very remiss and careless in paying their subscriptions when due. The sum is so small that possibly they think it can't be much upor down, although they are a few months behind and the secretary or treasurer knows they are good for the amount. The sum is small individually, but it is everything collectively. Many others, again, think that when they had paid their first subscription with perhaps a donation to form the society, that it ought to flourish without any more calls on them. All these militate against the usefulness of a society, and gives its officials a good deal of concern and anxiety, besides extra work, and as a matter of course entails extra expense. Every one who has a few hives of bees ought to become a member of the bee society in his or her district. It is in numbers that strength lies, and increased strength will give increased usefulness and greater good will ensue. All who are members ought to rigidly attend to the rules of their society, the rules and regulations they have laid down for themselves, especially regarding the payment of their subscriptions. The day they are due they ought to be paid as punctually as dividends are paid by the Bank of England. The amount is so small that really there is no excuse for dilatoriness. When one reflects how it eases the mind of the treasurer to have his subscriptions in hand, and also how this security enables the secretary to know what he may do, and enables him to put forward fresh efforts in extending the usefulness of the society.

Notwithstanding all the drawbacks I have mentioned, and many more not touched on, bee societies have flourished and increased. It seems to me, however, that they could be made more useful and more flourishing if there was a better bond of unity between them. Bee-keepers and bee societies are bound together by ties of common interest. Why should not bee-keepers have a mystic bond of brotherhood, like freemasons, gardeners, &c.? Seeing that the object and aim of bee societies are alike, why should they not have one code of rules or regulations, applicable to all? In place of being, as at present, divided and disunited, would it not be possible to amalgamate them altogether, and have only one Society in the whole kingdom?

I observe the British Bee-keepers' Association are moving for more united action between themselves and the English country Associations. This is certainly a step in the right direction, and shows that the parent society is anxious to extend its usefulness. But why not embrace the whole kingdom at once? The plan is feasible, as it would only need a very mild form of revolution to carry it out. It merely means one head central Association, with branches all over the kingdom. Once this National Society of Bee-keepers was instituted, it could be established by 'Royal Charter.'

Its exertions would be directed to the promotion of scientific and practical apiculture, and could have branches in every district or county in the kingdom, from which representatives could be elected to manage its affairs, allot prizes to be competed for at the district shows, appoint judges, employ experts or lecturers to illustrate and teach the natural history of the honey bee and practical bee-keeping in districts where such aid was necessary, and, of course, have a powerful journal, '*our own*,' for instance, entirely devoted to its interests, where proper and correct teaching would go on from month to month, and where all the transactions of the Society would be regularly published. The Government ought to give an annual grant to such an institution. Besides patrons, presidents, &c., there might be honorary, life, extraordinary, and ordinary members, and one well-paid official would conduct all the business of secretary and treasurer.

Even our c[illegible]ins across the water might be induced to become members of such a society, for they lack knowledge on many points, and their education has been sadly neglected in the matter of doing the right.

If you were taking this matter in hand, Mr. Editor, and devoting an article or two in your able style to this subject, this 'uniting of swarms,' I have no doubt you would very soon arrange the basis of a happy union of the different societies.

Once there was a proper groundwork of understanding, details could be easily settled.—J. S., *Arbroath*.

RECOLLECTIONS OF BEE-KEEPING.

Although I am only a junior, and as yet a novice in bee-keeping, yet I have, I may say, been amongst bees for fourteen or fifteen years. My father is an extensive bee-keeper, and of course very fond of his pets.

The first I can remember about bees is that when any of them swarmed, I was very anxious to see them hived, and would go quite near to watch. I next remember a mischievous boy (of course I was not one of that class) pushing a stick into the hive, but whether the bees had been tamed or not, or whether they were too weak to defend themselves, I did not know, at all events I thought they were rather tame in their resentment, he getting off without a sting. Soon I rejoiced in being the happy possessor of a hive of my own, it being my birthday present from my father. But I think that it was either a bad season for honey, or else my bees had intrigued together not to work for me: be that as it may, I did not get any honey from them. I think the queen must have grown old, and did not replenish the hive with young bees, or else they had no queen at all, for, during the following season, while a hive placed beside mine, belonging to my father, gathered 22 lbs. of super honey, mine was still idle.

The next year I exchanged my bees for the colony that had gathered the super honey, and thought that perhaps now I might have a chance to make a little profit from them. But no such luck! I succeeded no better with these.

About this time father had his first stock of Ligurians. I remember them being brought by him from Mr. Abbott's, who was then at Hanwell, and I too remember that they were suffocated during their journey, by the intense heat. Only a few bees remained alive, but by these I could distinguish the difference between their appearance and that of the black bees. Not to be disappointed, father had another colony of Ligurians, which

arrived safely. How carefully were these tended, almost like a child! I can recollect an incident which happened about this period, which, though not amusing at the time, we have often laughed about since. Seeing Mr. Abbott's advice about 'warming up' (*i.e.*, warming the bees during the winter nights by means of a lamp) father intended to try it. Accordingly, everything being in readiness, we sallied forth, lantern in hand, one very dark night, to place the bees on their warm stand. My father lifted up the hive, and placed it in its required place. I suppose we must have disturbed them, or something, for there were some dozens of the bees left on the floorboard. Directly they saw the light, of course they flew towards it. I put down the lantern in a hurry (I was not over bold in facing a bee) and ran away, leaving my father to manage as best he could.

The bees crept on him, and up his legs, and stung him one after another, but at last he succeeded in getting some of them into the hive, and then he retired to dress his wounds. Before the next 'warming-up,' he took the precaution to put a thin floorboard under the hive, and then he lifted them, board and all, together, on to the 'warmer,' and so we did not have any more escapades that winter.

In the following spring father and I visited the apiary of Mr. Abbott, which was then at Hanwell.

We went by excursion train (on Easter Monday) ostensibly to go to London, but we got out at Hanwell instead of going on farther. Here we spent four or five hours, during which time we looked around the 'bee-farm,' with which we were very much pleased. We were courteously treated by Mr. Abbott, who invited us to dinner, after which we proceeded on to London, and after a little time spent there, we returned home, highly gratified by our first visit to Mr. Abbott's apiary, though thoroughly tired, having travelled during the day a distance of about 220 miles.

For some time all went on as usual, and in a year or two our apiary had increased. I now became useful as my father's assistant during his manipulations, blowing smoke, &c. We used a smoker that fitted on the pipes of a pair of bellows, which answered very well, at least for me, for I could stand at a respectful distance from the sometimes angry bee, and yet be able to blow smoke when required. Sometimes this smoker would come unsoldered during operations, and then it was rather awkward. (We now use Neighbour's smoker, which works excellently.)

Once we had opened (I say *we*, for, like the organ-boy, I blew the bellows) a bar-frame hive, and had put on the crown-board, which consisted of four or five pieces of wood, each three or four inches wide. Imagining that they did not fit well together, my father proceeded to push both sides, when the middle pieces flew up. Out came the bees with a vengeance, and I, though protected by a veil, fled in consternation from the scene, taking with me what would have been my father's weapon of defence—the smoker. I, however, ventured again to come near, and soon all was right.

After a year or two I owned a stock of Ligurians, which then gave me a little honey.

The apiary had increased to about thirty colonies. It was the height of swarming time, when my father was compelled to leave home for a week, leaving me in charge of the bees. The first day there issued forth a monstrous swarm from a hive containing twenty frames, and which was working supers. They settled rather awkwardly, but after some little difficulty I hived them into a Woodbury hive, which they nearly filled with bees then, and soon afterwards filled quite with combs and honey. Several other swarms came afterwards, which were successfully hived.

I think that I am now a little bolder, and not quite so afraid of the 'business end' of a bee, and so you must not class me as a coward.—A JUNIOR IN BEE-KEEPING.

A FEW WORDS TO COUNTRY MINISTERS ABOUT BEES.

BY ONE OF THEMSELVES.

Axioms.—The following axioms, given by Mr. Langstroth, are just as true to-day as they were when written by that noted author.

There are a few first principles in bee-keeping which ought to be as familiar to the apiarist as the letters of the alphabet.

1. Bees gorged with honey never volunteer an attack.

2. Bees may always be made peaceable by inducing them to accept liquid sweets.

3. Bees, when frightened by smoke or by drumming on their hives, fill themselves with honey and lose all disposition to sting, unless they are hurt.

4. Bees dislike any quick movements about their hives, especially any motion which jars their combs.

5. In districts where forage is abundant only for a short period, the largest yield of honey will be secured by a very moderate increase of stocks.

6. A moderate increase of colonies in any one season, will, in the long run, prove to be the easiest, safest, and cheapest mode of managing bees.

7. Queenless colonies, unless supplied with a queen, will inevitably dwindle away, or be destroyed by the bee-moth, or by robber-bees.

8. The formation of new colonies should ordinarily be confined to the season when bees are accumulating honey; and if this, or any other operation must be performed, when forage is scarce, the greater precaution should be used to prevent robbing.

The essence of all profitable bee-keeping is contained in Oettl's Golden Rule: KEEP ALL YOUR STOCKS STRONG. If you cannot succeed in doing this, the more money you invest in bees, the heavier will be your losses; while, if your stocks are strong, you will show that you are a bee-master as well as a bee-keeper, and may safely calculate on generous returns from your industrious subjects.

'KEEP ALL COLONIES STRONG.'

EXTRACTS FROM THE DIARY OF A LADY BEEKEEPER.

(*Continued from* Vol. VI. p. 234.)

1878.—Began with the 2 new swarms and 1 cast, Swarm from P.'s No. 1, May 29th, 1877. Call No. 4 hive and weighed 3 lbs. 14 ozs.

Feb.—Not fed at all in 1877.

10*th.*—Examined hive—all right—quite heavy enough.

April.—Fed with a few lumps of sugar—a bad plan.

June 3rd.—A capital swarm, at 11.30 put in Woodbury hive.

Sept.—No. 4 in good condition, not fed at all through the winter.

No. 5.

Swarm of No. 2, May 31st. Hive weighed 7 lbs. 8 ozs. Put into Abbott's 'Cottage Standard'—fed a little at first.

June 7th.—Three bars with wax begun on them. Glorious!

8*th.*—Left off feeding.

Aug. 1st.—Took out a bar full of honey. Proud we are!

No. 6.

2nd Swarm from No. 1 put into A. B.'s old hive. Fed from Jan. to 4th April.

May 7th.—Looked very like swarming; went in again.

14*th.* " " " "

23*rd.* " " " "

24*th.*—Swarmed all over the hive; went in again.

26*th.*—Swarmed properly; a capital swarm. For want

of a better hive, it was put into 'Pagden's Nadir,' which answered very well.

June 6th.—Looked into this new swarm, it is filled with new comb about 5 or 6 inches long.

Sept.—Examined No. 6, all right, but light; fed for a month. Old S. argued with me about cutting off the floor-board of the nadir, as I stoutly refused he took offence, and went off with my wax. I have never seen him since. Jubilate! Good riddance.

No. 7.

May 26th.—A good swarm from No. 4; put into P.'s old straw skep; fed three weeks; doing well. P. came and examined my hives without veil or gloves. As P. worked without, so the little boy E. refused to use either in future, and has not had one sting yet. I have grown callous to stings. I get them continually, and my face seems in a chronic state of full moon beauty, looking so lovely, good-tempered, nothing were ever so laughable. Quite believe bee-stings a cure for rheumatism, as I have no signs of it. Advised Mr. C., who suffers martyrdom, to try it, but he refused, pohtely. I wonder at his deafness. He says he should prefer rheumatism to bee-stings, with the accompanying beauty! Vanity, like pride, must suffer.

No. 8.

June 1st.—A swarm from No. 5, put into one of A. B.'s old straw skep for want of something better; put in some old comb.

21st.—Examined the hive, found the wax had fallen down, and lying in a heap on the floor-board, all but one piece, on which the bees were thickly clustered, and had increased it so much it nearly touched the bottom of the hive, where the rest of the old comb lay. What a good thing we looked into the hive!

No. 9.

June 24th.—Another cast from somewhere; put it in another old skep—the more the merrier—will they go on so for ever?

	£	s.	d.
Furniture from Abbott & Co. . . .	2	12	8
Bee Journal for 1878, 6s.; 1877, 10s.	0	16	0
Expenses for supers, work, taking hives, &c.	3	17	4
Drone-trap, 3s. 6d., 10d. carriage, wax guides, 2s. 4d., wood for fitting up, 6s. 6d. . .	0	13	2
(Barley sugar, 2s. 6d.)	7	19	2
Add balance from 1877.	1	6	6
	£9	5	8

Bee-keeping a very unprofitable undertaking in my case, must try to do better, or give it up.

1879. *Feb. 12th.*—S. examined hives, all doing well; gave them barley sugar.

13*th.*—Rain all day; made bee syrup.

15*th.*—Very fine day. S. cleaned out all the hives. Very few dead bees, except in Pagden's nadir, and only about a handful there. Had seen them fighting. S. thinks feeding of no use now as all the hives are very heavy, especially the Abbott's Cottage Standard; I cannot lift it.

17*th.*—Found the mouths of the hives No. 1 and 2 not set right with the slope of the floor-boards. Tried to move them round to their right places. Found them set fast. Left them. Perhaps it is all right, for the hives are too near each other, and this makes the space greater. Bees at work as though it were spring; all about the Portugal laurels and fir-trees, and cabbage tribe of laurels.

18*th.*—Have already found fifty-eight dead bees, and 107 which have recovered in my warm hand. I wish they would be more careful and keep indoors this cold weather, but nature will out.

March 1st.—Found the bees busy over the pea-flour at last, but it seems to be only curiosity. They brush it away with their wings, but do not carry it into their hives. Neither do they care for the barley sugar, they are too well off.

2nd.—Tired of watching them. They are out whenever the weather is at all fit. Not caring for sunshine.

3rd.—A. B. here; promised to give him two swarms of bees if I get them (coals of fire on his head!) Advised him to try bar-hives; especially Abbott's Cottage Standard. 8*s.* 6*d.* not painted.

Shall put the swarms into two of her own old skeps, and let her have them transferred into the A. C. S. when they arrive at K.

Mrs. E. advised me to go to her husband for advice. Am afraid: he serves me so. Have already had too many advisers for my comfort, and pocket. I love my bees dearly. They are as good as children to me, but very expensive ones. I can as well realise the man in the moon, as the good accounts one reads of from the reports of honey gathering. Would that I may have like experience in the year of 1879.—M. B.

ITEMS OF IMPORTANCE.

BY MRS. E. S. TUPPER.

In the early days of our bee-keeping, especially after we began to use moveable comb hives, we found thedesire to examine our bees and see what they were about almost irresistible. Every few days the bees were brought up, hives opened, and exhibited to company. We had 'ventilation on the brain' then, too, and greatly overdid it; so much so that some colonies nearly 'went up' on account of a draught through the hive nearly sufficient for a stove-pipe! We know better now, and, having bought our experience dearly, are prepared to advise a serious letting-alone policy between the middle of November and the middle of February. Bees naturally remain semi-torpid at this time of year; and, if warm enough and not too warm—with plenty to eat where they can get it if they want it—are quiet and consume very little air. Be sure your bees have these conditions, and then rest easy about them, and leave them undisturbed, while you read about them prepare your hives and be ready for another year's operations.

The advantage of bee quilts, mats, or some other material over the frames of the hives near the cluster of bees cannot be too highly appreciated. They absorb all moisture as it rises, and keep the bees comfortable. Colonies can be wintered out-doors more safely with the quilts on than in a cellar without them. Some bee-keepers with only a few hives on the prairies bury the single hive as soon as hard freezing weather comes with sods or earth, leaving the entrance slightly open and protected from storms, and are very successful. Of course hives protected in this way must have, to be safe, some protection over the frames; nothing is better than a quilt. One correspondent inquires how he shall prevent his bees from gumming the quilt fast to the frames. Simply by taking it off before the bees begin to bring in much propolis. By the time they do this the necessity of the bee quilt has passed, and it may be replaced by surplus boxes or frames.

In arranging for next year be sure to include an extractor in your list of implements. Nearly every spring an extractor has paid for itself by enabling us to take surplus honey from some hives where it was really in the way of the brood, and had better be taken, even if fed back to them if a honey dearth occurs.

Every year in our experience has the extractor become more valuable. We would not be without one in an apiary of half-a-dozen hives, no matter how low the price of extracted honey.—*American Bee-keeper's Magazine.*

Echoes from the Hives.

Tinahely, County Wicklow, Ireland, April 28th, 1879.—'I am watched greatly here, as they don't believe me sane for indulging in bar-frames and sectional supers, and waxed guides; and when I tell them that the bees will begin to build combs where I've marked the supers, they all say, "Every one has a different way of going mad." If I get "Combination" I'll be clapped into the asylum at once.'—J. Traynor.

Loss of Queens.—Oxford, April 29, 1879.—'Bees appear to be about six weeks late with me. I had one stock die in early spring, with plenty of food; but I found that they had raised a young queen after going into winter quarters, which, of course, continued a virgin: whether they got disheartened at the prospect of having no brood I can't say. Of the remaining nine stocks I have but six left, all having lost their queens but these—a Ligurian queen, purchased last October; two young Ligurians, bred last year, and one black queen from a condemned lot of bees; the bees belonging to these stocks were joined to their next neighbours as soon as the loss was found out.'—A. J. C.

[The number of queens lost during the past winter and spring has been extraordinary.—Ed.]

Beauly, N.B., May 3, 1879.—'My bees, I am glad to say, have wintered wonderfully this trying winter and spring, and are now taking in any quantity of pea-flour. I never remember such a backward spring; there is hardly a blade of grass to be seen. But to-day, I am glad to say, we are having some nice warm rain, which will do no end of good. Wishing you every success for the coming season.'—W. C. P.

Bishop's Stortford, May 5th, 1879.—*Glass Hives.*—'The two stocks (one of which was a last year's swarm) have wintered well in the open; they are all that I have retained when I removed to my new house; they are in hives of your Makeshift pattern, but all glass. I am assisting them with syrup as the weather is so much against them. Yesterday was the first day here that the sun shone all day, but it was wintry and cold still.'—G. T.

May 13th, 1879.—*Ligurianising.—Queens by Post.*—'I received two Ligurian queens last autumn, which I put at the head of two stocks in straw skeps. One of the stocks died in the winter, and the other stock shows drones. I saw some at it first on the 27th ult., and as it is not very strong in worker-bees, I fear it may be a drone-breeder; if so, I think the Ligurian queen must have been killed or died, and the bees reared another queen in her place, which not being hatched until the destruction of the drones had taken place, remains a virgin queen. I trust our Continental cousins will never send us bees by *post* again, for I believe they don't very soon get over the injurious effects of such packing and travelling. I have not seen any drones at any of my other hives. We are not anticipating many May swarms in this neighbourhood, and it would be almost useless to take them unless the weather alters considerably from what it has been lately.'—John Enock.

[The Post-office authorities in London will not deliver living queens, if they know of them being enclosed in parcels—we have had costly experience of the fact.—Ed. *B. B. J.*]

May 14th, 1879.—'I now use glass, size of *carte-de-visite*, for feeding-stage. It is clean and rigid. I take off polish by grinding on flat stone with sand, and then I drill two or three small holes, as required. I am not in the habit of smashing everything I touch as some people are, so perhaps a bit of tin or iron is more suitable for "light-fingered gentry"—of course I mean the epithet in good sense.'—J. L. S.

May 17th, 1879.—'I thought of giving up the *B. B. Journal*, as, on account of the infirmities of age, I am unable to attend to my bees as I ought; but I like the serial so much that I must pay for another year. Herewith is enclosed my subscription. What a sad spring for the industrious little creatures! I saved my stocks, very heavy, last autumn, and am now reaping the advantage. Wishing you every success, I am, &c.'—J. B.

Nancy, France, May 22.—'How are you getting on in England? Here the bees have done absolutely nothing up to date. I have opened my hives, and all are very strong and full of young brood, but not an ounce of honey stored yet, and I have fed all lately quite. I drove to-day all the bees from the two strongest hives the Abbé Collin had in his apiary for him to see—*hives left full last autumn*. The same story: not a drop of fresh honey, though full of bees and brood. Please give us information from other localities in your next.'—G. F. P.

Send Holme, Woking.—'I hope the weather will soon be better for the bees and flowers. I never knew a later season for everything than this is. About here peaches and nectarines only just set their blooms, and plums only just coming into flower. Apples are full of bud, and the clover-fields look first-class, and when they do come there will be something for the bees to do. I have not done badly with my stock—ten in Woodburies and one in straw. I have lost one. I have three lots of Ligurians from the queen I had from you last May; they have all their centre combs now full of eggs, and brood in all stages, so that I think now I shall be able to compare them pretty well with the blacks.'—Stephen Spooner.

Hull.—A Lament.—'I have been so busy during the winter I have not been able either to complete the re-writing of my own lecture, or to deliver the other one; and having lost all my bees, I am rather down-hearted just now. How I miss their music when I go into the garden! How I have mourned to see my thousands of crocuses "wasting their sweetness on the desert air," or destroyed by the mischievous sparrows! And to see the long lines of white arabis, and no bees to suck the nectar therefrom! It really gave me pleasure the other day to see a fine queen humble-bee feasting herself upon it. I sometimes think we are getting too much built up for them to prosper here; but shall try again I think soon.'—J. R. J.

Tisbury.—'I may say that my hives have wintered very fairly, all things considered; and thanks to your suggestion about *winter passages*, which are *most* necessary. But the old Standards have wintered better than any, each stock which was in them surviving the winter. In very bleak places I might advise the erection of a furze-hedge, about six feet high. I have found this very useful, keeping off the wind well, as the prickles, when dead, do not fall off; behind this, if a laurel hedge be planted, in a few years the latter will take the place of the former warm (though not beautiful) screen.'—A. G. R.

Cherry Trees, Dumfries.—The Journal—Bee-keeping in Scotland.—'The enclosed money-order is for the forthcoming eleven numbers of the volume of *B. B. Journal*. You will pardon me as I state, with the order, that this is a very good place for bees. It is quite usual with me to take down swarms in the middle of August, the yield of which is 60lbs. of comb, and I have obtained 108lbs. from a swarm after 22nd of June. This year the hives were in a bad state from Feb. till 19th April. On the later date I drummed five hives, and gave the bees *clean empty boxes*, and now they are prospering exceedingly, and showing great numbers of young bees coming in loaded from the maple-tree, gladdening my heart, and augurring well for swarming not very late, after all.'—John Hume.

Grantham.—'Bees now doing well, weather a little more favourable, any number of yellow-legs; not many drones

about (I mean drone bees of course) have not heard of one single swarm yet in this neighbourhood. My stocks are strong and are breeding *fairly*. I am still feeding with barley-sugar, and it is taken freely by light stocks; but my heavier ones don't care about it. Account of great losses during the winter are still being recorded, and many inquiries for swarms and stocks are now being made. Prices range from 10*s.* to 15*s.* for first swarms, and for stocks (in straw) 15*s.* to 20*s.*; the interest in our favourite pursuit is on the increase, and the public begin to see how very nice it is to be able to walk into their gardens and take a little honey as they want it.'—R. R. GODFREY.

Queries and Replies.

QUERY No. 314.—1. What depth should the comb-foundation be put on supers, and what on frame hives? 2. I lost one of my hives during the day or two of very cold weather we had in April, they were in a common straw skep and the combs ran across the hive, which I suppose was the cause of their dying, as they could not get at the honey which was at the back, and I did not cut any winter passages. 3. They had been in this hive three years, what would you recommend me to do with the old combs? I have four hives more in three of which the combs run across the hive, and two of these are *natural first swarms*. 4. If I should get a 'Standard' hive, could I lessen the size of it by a thin board between the frames, if my bees did not fill it in one year?—W. J. G.

REPLY TO QUERY No. 314.—1. We infinitely prefer that supers should be furnished with guides only, say half an inch deep, as wax, after having been 'manufactured,' acquires a flavour which is not nice, and spoils the delicacy of the honey. For hives the foundation may be as deep as is consistent with safety. See page 'Editorial,' on the subject. 2. This may have been the case, and if so, where is the vaunted superiority of the skep, and the instinct of bees that always (?) teaches them to build from front to rear of their hives? 3. Cut them out, and having taken the honey, melt the empty parts and save the wax; combs in which bees have died, leaving honey behind is not safe. 4. Certainly.—ED.

QUERY No. 315. –*Foul Brood.*—I fear to have got foul-brood. Will you please be good enough to look at the two pieces I have sent, and say 'yes' or 'no?' If so, what had I best do? I have seven hives left: Woodburies, double-walled, about two years old. Shall I have to kill all, or can I safely put two or three lots together, saving my Ligurian queens, of which I have only two left? Would it do to use any of the old bars of comb that look clean, without brood in, if I put it into clean hive? I think I must have got the pest through taking some old straw skeps from a gentleman last year. My bees have been dwindling down ever since. It will be a bad year for me if it turns out to be foul-brood, which I feel sure it is, although I have never seen it. There is not more than one pint of bees left in some of the hives.—STEPHEN SPOONER.

REPLY TO QUERY No. 315.—The filthy stench arising from the comb would prove the presence of the foul disease, if evidence other than the rotten brood in the cells were required. Unite all the bees of the affected hives, and put them into one or more old skeps, that they may consume the honey in their honey-sacs. Two days of such quarantine will be sufficient, after which they should be re-hived as natural swarms, and the old skeps burned forthwith. Do not attempt to utilise any of the comb except to obtain the wax. The indiscriminate use of old comb is a great means of spreading the disease; and in these days of 'comb-foundation,' 'the game is not worth the candle.'—ED.

QUERY No. 316.—*Supering.*—1. When is the proper time to put on supers, *i.e.* how long after the swarm has been hived? 2. Should supers that have wax-guides run parallel with the bars underneath? For if they did not, and the hive *still remains inclined* to the front, would not the comb made in the sectional supers be out of plumb with the sections? 3. Does it signify about the wax-guides being more than one and a half inch apart? 4. Ought the quilting to be laid on after the swarm is hived? or would adapting boards do as well? In one number of the *Journal* I see you recommend laying on the quilt, and cutting a narrow slit in it to allow the bees access to the supers; and in another Number you recommend the adapter.—I. M. A.

REPLY TO QUERY No. 316.—1. When the bees have built the comb down to the bottom of the hive. 2. There is no doubt but that your view is correct; but if the hive be set level, as it well might be when filled with combs, the sections may be set either way. 3. In hives they should not be more than one and a half inches apart; but in supers they may be two inches, though if less the combs of honey will only be so much narrower. 4. Adapting-boards will do very well for swarms; but the apertures should be covered with quilting. Cutting a hole in the quilt is the right thing for feeding, but not for supering. The cases are not analogous.—ED.

QUERY, No. 317.—*Dysenteric combs.*—One of my stocks died this spring of dysentery. As the hive is combed and half full of honey, I should like to put a swarm into it, but am afraid of doing so. Would there be any fear of the swarm getting dysentery? It was a stock I bought last autumn, and I thought at the time was healthy.—M. S., *Runcorn.*

REPLY TO QUERY No. 317.—We have usually found foul brood arise from the young bees being fed on honey from dysenteric combs, and believe the one disease (foul brood) to be caused by the other. Removing bees during cold weather often causes dysentery through the exercise of their habit of taking large quautities of food when disturbed, and through cold, being unable to take a cleansing flight. We recommend the destruction of the comb, their replacement with new ones, or comb-foundation and the boiling up of their honey, which may afterwards be fed back to them. If the empty comb could be cut out and thoroughly washed in a strong solution of Condy's fluid, it might, after being well rinsed in clean water, be utilised with safety, but it is barely worth the labour and cost involved.—ED.

QUERY No. 318.—Can I remove a hive full of bees and comb at any time of the year? and when first removed how should they be treated?—CATFORD.

REPLY TO QUERY No. 318.—Bees may be removed at any season; and if great care be exercised, they require no special treatment afterwards, provided they be taken a distance of about twice their present radius of flight, say two miles. They should be carried steadily on a hand-barrow, the entrance being closed with perforated zinc and a good ventilator of the same kind placed over the open feeding-hole in the crown; they should be carried at night, and the entrance having been unclosed and the cover adjusted, they may be left without fear of injury. Sending bees by rail has often been described in *Journal*, and moving them very short distances is impracticable at this season unless the method recommended on p. 116 of Vol. VI. of *Journal* be adopted.—ED.

NOTICES TO CORRESPONDENTS & INQUIRERS.

S. H. *Chigwell, Essex.*—It is impossible to say on what day or hour any individual will be operating in the manipulating tent at South Kensington. Entries have not been made, nor times apportioned, and as we are not favoured we cannot even suggest the hour when it may be our lot to run the gauntlet.

*** *By the insertion of four additional pages this month we have been enabled to reduce the amount of outstanding correspondence, but there are still some contributions which are unavoidably postponed.*

THE NATURAL HISTORY OF THE BEES.

Translated and abridged from the work of the Abbé Collin. Fourth Edition. Paris. Berger, Levraut & Co. 1875.

(*Continued from Vol. VI. p.* 173.)

The ordinary period necessary for the hatching and development of the young brood in each stage is for the queen-bee fifteen days and twelve hours; for the ordinary worker twenty days, and for the drones twenty-four days. In the case of the queen-bee, this period is subdivided as follows: In the egg, three days; as a grub, five days; and after the cell is closed, in the chrysalis stage, from seven days and eight hours to seven days and twelve hours. The time occupied in closing the cell must be very short, as the author has never been able to surprise the bees in the act. This period may occasionally be prolonged as much as thirty-six hours, both for the closing of the cell and the full development of the insect, under unfavourable conditions of temperature, or in very weak hives. As soon as the insect is ready to issue from its cell, the bees tear away the wax-cover at the end, and when the cocoon is exposed to view, you may be sure that the young queen is alive, and ready to be born. This operation of opening the point of the cell seems to be necessary, for in all cases where the cell was untouched after it had been closed in for more than seven days, the author has found that the young queen was dead. In all cases, then, when you wish to detach a royal cell, in order to give it to another hive, if at the seventh day you find the point of the cell opened, you may safely assume that the young queen is all right; and whenever the cell is intact, she is for some reason not perfectly developed, or more probably she will be dead.

In case the bees are discovered opening the point of the cell before the proper period, it may be relied on that it is with a view to kill her, and not to release her from captivity, that they do so.

For the development of the worker-bee the same period is required in the first two stages as for the queen, against three days in the egg, and five days as a grub; but in their case twelve days are requisite in the chrysalis stage, after the cell is closed in, or twenty days in all. This period, however, may be shortened by one day in very strong hives, and in very hot weather; and it may be lengthened out to twenty-two, or even twenty-three days, under unfavourable conditions of hive-heat and population.

The drones, like the queens and worker-bees, remain three days in the egg, but are six days and twelve hours in the grub form, and do not emerge from the cells as perfect insects till the twenty-fourth day after the egg is first laid. In 1863 the author observed many drones that were not more than twenty-three days under incubation from first to last. In this case the eggs were laid in the latter days of July, and the heat during almost all the period referred to was exceptionally great.

The German authorities are somewhat contradictory in regard to the period requisite for the young brood to come to maturity, and the question would seem to require further study by them.

In regard to the worker-bee, they are all in error in stating that she remains in the grub stage for six days, and that the cells are closed nine days only after the eggs are laid. The author proved absolutely by experiments, in June 1861, that under an ordinary temperature the cells were closed in eight days after the eggs were laid; and in regard to the queen-bee, the following will be found in the works of Œttl, Dzierzon, and Berlepsch.

Œttl.—The queen arrives at maturity from the twelfth to the fifteenth day after she emerges from the egg; she is fertilised ordinarily the day after the second swarm leaves the hive; she lays the third or fourth day after she has been fertilised. In another place, however, Œttl says that the queen lays on the eighth day only after the second swarm has left the hive.

Dzierzon says that the queen bee arrives at maturity in sixteen days; she is ready to be fertilised from the third to the eighth day after her birth, according to the temperature at the time, and the activity of the hive; she lays first two days after the act of fertilisation. Further on, Dzierzon says that all laying ceases in a hive for three weeks after a swarm leaves the hive, which is equivalent to saying that the young queen only commences to lay about the twelfth day after her birth, which may be still further delayed in the case of unfavourable weather.

Berlepsch states that the queen attains full development in seventeen days, of which five and a half are passed under the form of grub, and eight and a half in the chrysalis stage. He says that the queen goes out for fertilisation the third day after her birth, and that she begins to lay the third day after she has been fertilised.

Swarming.—When God created living creatures on the earth, His command to them was to increase and multiply. The manner in which the bees obey this command is by swarming. By swarming one family is formed into two, and the one that composes the new family is called a *swarm*. Thus the swarm is that portion of the old family which separates itself from the hive to form a new one. The old queen always accompanies this new family to their new home, while one of her daughters—a queen like herself—remains with the old home to occupy her place.

The first swarm may be followed at a few days' interval by a second, and even by a third swarm, which are led by a young queen, which is born only after the first one has gone away.

On the return of spring, in a well-stocked hive, the queen will lay in April and May a number of drones' eggs, and at the same moment the working-bees will construct a number of royal cells; and five or six days before the chrysalis in these royal cells comes to maturity, the swarm will usually issue from the hive. In case of bad weather, if the issue of the swarm is prevented, the bees will usually destroy the royal cells, and prevent the chrysalis in them arriving at maturity, in which case the swarm is stopped altogether. If, however, these swarming preparations are only in an earlier stage, the swarm may come off after all, though at a somewhat later period.

If the hive is weakened considerably after the issue of the first swarm, the bees generally give up at once all idea of swarming again. They allow the first queen which comes to maturity to emerge from her cell, and she at once puts an end to her rivals, by stinging them to death in their cells. But if the hive is strong enough to throw off a second swarm, she will not be allowed to do so; and then, either from fear or from jealousy, she gives forth the well-known clear and plaintive cry of 'tuh,' 'tuh,' ten times and more running, and with such vigour that, especially towards the evening, she may be heard three paces, or more, from the hive. The day, or at most the day but one, after this sound is heard, the second swarm will leave the hive.

If, however, bad weather ensues, and the swarm cannot go away, other young queens come to maturity, and, being kept prisoners in their cells, they reply to the first queen's cry of 'tuh' by a stifled cry of 'quak,' 'quak.' The first fine day the swarm, however, will go off with the first queen (she who cried 'tuh'), and then the eldest of the queens in the cells, who cried 'quak,' will be allowed to come forth and take possession of her vacant home. Generally she will be permitted to destroy her rivals; but if the hive be still inclined to swarm a third time, this will not be permitted, and she in turn will cry 'tuh,' like her predecessor, and, like her, will be answered by a 'quak' from those who are still imprisoned in the cell; a third swarm will then leave the hive, and a second queen

will be allowed to come forth and become the mother of the hive.

The Germans were the first to recognise these cries of the queen-bee, and to distinguish between them; and the author, in his experiments in 1868, published in the *Apiculteur* of January 1867, fully recognised the correctness of their teaching in this particular. He has himself observed the young queen as she uttered the plaintive cry of 'tuh,' while he heard those imprisoned in the cells reply to her cry by the stifled cry of 'quak.'

The day after a second swarm has gone out several dead queens may generally be found on the ground before the old hive. Sometimes, though more rarely, they may also be found in front of the swarm. In the latter case they are young queens, who in the tumult and excitement of swarming, have got out of their cells, and gone away with the swarm.

The author has never found any young queens dead in front of hives that had swarmed only once; but inside the hives, in such cases, he has very often found royal cells, perfectly closed, with young queens dead, or chrysalis, in a dried-up state, inside them.

The young queens who have come to maturity, but which are kept prisoners in the cells, are fed through a small hole made in the cover of the cell. They pass their trunk through this hole to demand and receive the food which is duly given them.* As soon as they have been fed, the hole is closed by the worker-bee.

(To be continued.)

* The necessity for food is, in our opinion, the cause of the 'tuh' and 'quak,' an idea quite in unison with other facts stated.—Ed. *B. B. J.*

BRITISH BEE-KEEPERS' ASSOCIATION,

INSTITUTED 1874.

PRESIDENT ... ... THE BARONESS BURDETT-COUTTS.

THE ASSOCIATION will hold their FIFTH GREAT EXHIBITION of Bees and their Produce, Hives, and Bee Furniture, and HONEY FAIR, at the Royal Horticultural Society's Gardens, South Kensington, in connexion with the Society's Flower Show, on Tuesday, Wednesday, and Thursday, July 22, 23, and 24, 1879.

Exhibitors must remit an Entrance Fee of One Shilling for each Entry made, and forward their Entry Forms properly filled up, in time to reach the Rev. H. R. Peel, Abbot's Hill, Hemel Hempstead, Herts, on or before Monday, July 14th. Entries will not be received unless they are made on the proper form of Certificates, and accompanied with the requisite fees. *Foreign and Colonial Exhibitors will not be required to pay any Entry Fees.*

The Corrected Schedule of Prizes may be had on application to the Hon. Sec., Rev. H. R. PEEL, Abbot's Hill, Hemel Hempstead.

HERTFORDSHIRE BEE-KEEPERS' ASSOCIATION.

This Association will hold TWO SHOWS of BEES, HIVES, and HONEY, during the ensuing Season. The first to take place at Hertford, in connexion with the Labourers' Friend Society's Cottage Garden Show, on July 17, and the second at Hemel Hempstead, in connexion with the Hemel Hempstead Poultry Show, on October 1 and 2. The same List of Prizes will be given at both Shows, Schedules of which may now be obtained upon application to the Hon. Secretary, Rev. H. R. Peel, Abbot's Hill, Hemel Hempstead.

THE SOMERSETSHIRE BEE COMPANY are prepared to receive Tenders for the following:—

300 SWARMS of BEES, in small or large quantities, at per lb., to be delivered at the Highbridge Railway Station, Somersetshire, any date after 10th of June, 1879.

2000 MORTISED WOODBURY HIVES, with Bell-wire Staples as distance pegs, with wide slit in top to take Guide Combs. 500 will be required the first week in June, and the rest to be delivered as may be required by the Company.

IMPRESSED WAX SHEETS, Brown Worker and White Drone, at per cwt., required the first week in June. Not to exceed 10 inches in width.

A Sample Frame, and Specimen of Wax Sheets, must be sent to the Manager, to the Weston-super-Mare Railway Station.

CASH ON RECEIPT OF INVOICE.

O. POOLE, *Manager*,
Moorland Road, Weston-super-Mare.

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 75. Vol. VII.] JULY, 1879. [Published Monthly.]

Editorial, Notices, &c.

JULY.

The weather and its peculiarities form, as is usual, the chief topic of conversation at this time of year; but never in human memory has it been so all-absorbing. Here is Midsummer Day, and during the half-year which has passed, there has not been one full day of true spring or summer weather,; and, as regards 'the crops,' all the 'culturists are in despair, and are wondering how it will all end. It is usually considered 'bad' when May goes out without a wheat-ear; but in this extraordinary year, June can scarcely be said to have produced the phenomenon, for up to now, June 24, in this London county, not a sign has been made which can be construed into the semblance of a corn-pod. Another old refrain says:—

'Whether 'tis early, late, or soon,
We always enjoy our rose in June.'

But it jars mournfully on the ear, for as yet they are but sadly promised, the buds appearing 'like sweet bells jangled, harsh and out of tune,' the probability being that they will not develope into anything but subjects of regret. And 'it's all owing to the weather and those dreadful Yankees, for since they have undertaken its management we have had nothing but disaster,' so argued a bee-keeper of the old style, while deploring the loss of three-fourths of his stocks, because he did not think it was natural for bees to want feeding. 'They allays ought to get their own livin', it's natural,' said he, with a growl. Yes, we agreed, it is natural for bees and every other class of stock to get their own living; and in their *natural* condition of *wildness* they do their best, but none count their losses, or know how they prey upon each other, and, except they be discovered, and robbed, they produce no honey for the use of man, though their services as fertilisers of flowers are always invaluable. This, in turn, brings out a fact which certainly ought not to be overlooked—viz., that in consequence of the severe weather while our orchards were in blossom, the bees were unable to perform their pleasant duty of collecting the pollen, and insensibly fertilising the blossoms; and, as a consequence, the general fruit crop will be a small one. In a former number of *Journal* we suggested that gooseberries especially would suffer, and the result proves the case, for where we should have thousands of berries we have not tens, and doubtless our fate is indicative of others' condition.

This is Midsummer Day, 1879, and it is raining, hailing, howling, lightning and thundering as if the weather had broken loose, and was subject to no rule whatever. It is very 'trying,' but it bears out one other truism, which says, 'that things are never so bad, but they might be worse,' as those who read the doleful letter of the great German bee-master—the Pastor Dzierzon—on page 55 will be compelled to admit; the picture he portrays is simply deplorable. The prospect for England, in fact for all Britain and Ireland, is anything but encouraging, a subject the more pitiful because the public mind has been of late much awakened to the advantages of intelligent bee-culture, and fresh ground has been broken in many places, where associations have been formed and shows proposed, which it was hopefully believed would help to spread a knowledge of the improved methods adopted, and create a more ardent desire in the public mind to engage in the pursuit. Reference to the list of shows to be held will at once convince even the sceptical of the increasing interest with which bee-culture is now regarded; and nothing is wanted but fair weather to ensure its general popularity, and cause every cottager to start an apiary, to help him to pay his rent or buy food for his family.

USEFUL HINTS.

Queenless Stocks.—Look out carefully for queenless stocks. After swarming is over, it is necessary for the young queen reguant to go on a fertilising excursion, and in such wretched

weather as has been experienced, many will have been lost. All such should be requeened forthwith, for it is troublesome to get old bees to accept a queen, and dangerous also.

Swarms.—Do not neglect swarms, but take care that they are supplied with food until they have built their combs. A little neglect in bad weather will cause them to cease building, and after that they will not resume their work until they want space for storing, if ever that happy time will come in this year of grace.

White Bees.—White bees on the alighting board are signs of starvation that require immediate attention, and food should be given at once, and with a liberal hand. They must be 'hard times' that induce bees to devour their own brood; but this they do when under the awful pinch of extreme hunger.

Wax Moth.—These will become a terrible pest if their growth is encouraged by leaving old hives of comb standing about. They are a great nuisance, and often infest straw skeps, more particularly those that are old and whose crowns have sunk, permitting the combs to reach the floor. Frequent exchange and cleansing of floor-boards will do much to prevent the evil; but where they have attained *entrée*, they must be sought out and destroyed.

Examine Hives.—Hives should be examined occasionally, but it should be remembered that bees are much more vicious when there is no honey in the fields, therefore amateurs should not be too venturesome. Smoking them and wearing a veil and gloves are wise precautions, but leather gloves should not be used. India-rubber only, if any, should be worn.

Honey Glut.—If there should be a honey glut, and it is possible that a few fine days may force the flower and limes to yield abundantly, the bees will fill up their brood-nest, and perhaps cluster idly as if about to swarm, in which case the extractor should be freely used.

Extractors.—The extractor should often be brought into requisition when honey is coming in freely. Extracted honey often requires ripening—*i.e.*, some of its watery particles must be evaporated, or it will not keep. This is done by subjecting it to a heat of about 100° Fahrenheit, until it has acquired proper consistency.

Sections.—If sections be filled, remove them as quickly as they are completed. It may not be necessary to replace them by empty ones; the bee-keeper must judge of the wisdom of that policy, by the state of the weather and his surroundings in the fields.

Late Season.—There is plenty of time for a good harvest even now. Everything is a month late, or more, so *Nil Desperandum*—we'll still hope.

Former Hints.—These should be looked over, and where practicable, adopted. It is not possible to fit in work for the month when the months do not fit their places in the calendar. We try hard to meet all contingencies, and are always willing to give every possible information, on receipt of stamp-directed envelope, to all our subscribers.

SUPERING—GETTING COMB-HONEY.

'Why do not my bees go into my supers and make honey? I have tried everything, but they won't go up; or if they do it is only to loiter and waste their time till fine weather comes, and then they swarm.' This is the kind of question that has been harassing us of late, though, on the face of it, it carries its own reply. The bees keep waiting for fine weather, and then they do as humans do, to prevent starvation at home—they emigrate. There is an old and true saying amongst bee-keepers, to the effect that hot weather produces honey, and moist, swarms; and this year's experience is fully in accordance therewith, in a negative sense, as regards honey; for hot weather we have had none; but the breeding of bees, and their tendency to swarm, has been remarkable. Of this, however, we shall treat in another article, and for the present shall endeavour to confine our remarks to the best mode of obtaining comb honey, whether in supers, nadirs, or collaterally.

It will do no harm to repeat here that the time for supering is when there are plenty of flowers and blossoms in the fields and orchards, fine weather to cause the secretion of honey and enough bees to gather more than is required for the daily wants of the hive. Obviously if there are no blossoms, be the weather ever so fine, there will be little, if any, honey; but should the weather be so that bees can scarcely venture abroad, the chances of honey-getting are highly chimerical.

At the present time there is naturally a scarcity of honey; the fruit-blossoms have departed, and the limes and clover have not appeared yet, and happy are they who have provided for the dull interval. In our own apiary there are two or three thousand kail-stems, each with a glorious golden head, bearing myriads of blossoms, on which the bees have had a good month's diversion, and this is now being followed by twenty or thirty rods of mustard, which will eke out a supply until the clover comes on; and, then, how about the weather? Aye, there's the rub! If it be, as some one has prophesied, so hot as to compensate for the late continued long, cold winter, then there will be hope for bee-keepers and honey *galore*.

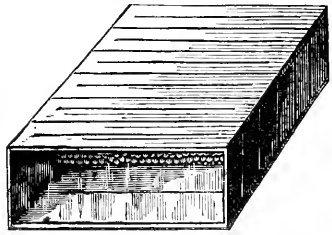
There are, of course, many apiaries within

bee-shot of mustard-fields, bean-fields, broom-fields, and the like, where, on every fine hour, the bees will be as busy as is their wont; and we will hope that, during the present month, they will be able to sport among the clover to their hearts' content, and bear home many a load of its pure nectar. Under any circumstances it is certain that, if opportunity offer, the bees will do their best; and if they appear to the uninitiated to be idle during seemingly good weather, it may safely be inferred that no honey is being secreted in the flowers or trees, and that there is wisdom in their reserving their strength. Bees do nothing for appearance sake, and they should not be blamed because they do not hit the whim of their owner, who may, perhaps, have been too kind to them, and by over-managing have prevented the consummation he most devoutly wishes for.

We will, however, suppose that there will be an average honey yield, and average weather to permit the bees to collect it; then, what is to be done to help them to take the fullest advantage of the happy time? Bearing in mind that there can only be as much honey stored in a hive as is brought in, in excess of the daily requirements of its inhabitants, it is a reasonable inference that if the queen be removed, and the production of brood prevented for the time being, the amount of honey stored would be greater in proportion, so long as the population was kept up. That it is so, is yearly exemplified in the apiaries of cottagers; they allow their bees to swarm, and directly afterwards put on supers—young bees hatch out rapidly, and after a few days, having no brood to attend to, storing commences and the supers get filled.

But how much more honey might have been stored if instead of the swarm having left the hive, it had remained to help fill the supers, or other receptacles provided for them? It seems only reasonable that if the population had all worked to one end, instead of having divided and caused the establishment of a new home at great cost in honey, the result would have been much more satisfactory, and we are inclined to believe that the removal or confinement of queens during the honey harvest would be the wisest course to pursue. The removal of the queen would prevent swarming and increase of brood for at least ten days, and her confinement would stop both for good. By confinement we do not mean the fixing of her majesty on a comb in an ordinary queen-cage, but simply narrowing her dominion by putting excluder zinc to embrace selected combs, so that she can neither stray about the hive or leave with a swarm, though whether attempts to swarm, frustrated by her inability to join the bees, would demoralise them remains to be seen; we think it would have no ill effect.

Now as to the construction and position of the honey receptacles. Almost all advanced bee-keepers are agreed that for marketing purposes, the sectional super, the section-crate, or



SET OF SECTIONS.

the section frame, and the new-idea frame, offer the most advantages; though there are not a few who believe in and admire the old-fashioned, inconvenient bell-glasses; and to all we wish good luck, and that they may become filled. It is a fact admitted by bee-keepers, that bees store their honey at the farthest point from the entrance of their hive; a fact which points to the absurdity of making convenient short cuts to the honey receptacles, added to which there is the danger in such cases that the bees may carry pollen to them, and deposit it in the cells intended for honey only, and thus spoil, in a marketing sense, the whole super or set of sections. We are strongly in favour of the method of storing used in the Combination hive, where the brood-nest can be limited to the smallest compass, and sections, to which alone the bees have access, can be suspended, or piled at the back of the hive, or laid over the top to almost any extent. Others have their own peculiar views as to the position of sections, &c.; some preferring that they be placed at the sides of the hive, or at the bottom; but be they where they may, the first difficulty is to cause the bees to take to them and commence comb-building; for comb must be built before honey can be stored.

Many bee-keepers, however, are not satisfied when their bees do thus much to show their disposition. 'They build comb, but do not make any honey!' querulously say they, forgetting that bees are not honey-factors, but only refiners. Man may as well be expected to make sugar, as bees to make honey. The one extracts sugar from the cane, the other nectar from flowers (when such work is possible); and the sugar-factory and the bee-hive are simply refining laboratories—the amount of work done, and the value of the product, being governed by the quantity and quality of the raw material obtainable, and the labour strength

of the hive or factory. In these days, when exhibition honey and comb are compulsorily required to be of the current year, feeding, to enable the bees to produce comb in supers, is not permissible; but for private honey growers, *i.e.*, those who produce it for their own consumption, it will be found a good plan to aid the bees by giving them syrup or barley sugar, that they may get forward with their work, in readiness for the harvest which they hope for.

One of the first inducements to bees to enter supers is warmth, the next is an enticing piece of empty comb, or some pure wax foundation, and these placed where the combs are required to be built will, if there be a harvest and plenty of labourers, generally be efficient. The heat of the hive ought to be sufficient to warm the super, and in fine weather it would be so, but when we are trying to procure enforced labour it may be necessary to resort to artificial heat.

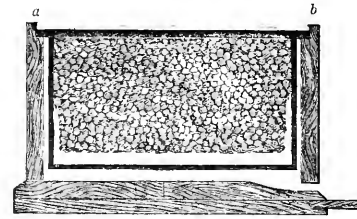
Heat may be applied artificially, as was shown by a gallant correspondent, Captain A., last autumn, by winding a coil of piping around the supers, and filling it (the coil) with hot water, by placing hot bricks around or upon them, or by any other ready means; but in view of the necessity for a means to the end, we are preparing an adapting-board which shall contain a hot-water reservoir, to be placed between the hive and supers, and when filled will impart a warmth which will last a good time, and which, when cold, will not be injurious. This will be on view for the first time, with Abbott Bros.' exhibits, at the Royal Agricultural Show at Kilburn, and will, doubtless, be the subject of experiment there.

The requisite heat having been provided, artificially or otherwise, and some nice clean comb or pure foundation having been properly placed in the supers, the bees ought to enter at once and commence building operations.

Those who intend using attraction-comb will do well if they do not attempt to FIX it in the supers, but rather leave the bees to make it fast for themselves. Bees cannot tolerate anything that seems dangerous, tottering, or liable to fall; hence, if a bell-glass a foot high (placed on a hive) contained some dangling pieces of comb, the bees would go up and fix them, though not intending to stay and work there; and if by such means they be 'persuaded' to enter the supers, a supply of food would probably keep them there, and comb-building would go on as a matter of course. Pieces of comb suspended by wires, so as nearly to touch the top of the super, will ensure attention by the bees.

Bell-glasses should have floor-boards of their own, even though they be made of cardboard, that when removal becomes necessary they may be taken away intact, otherwise (if filled) the bees will build down to the adapter, and it will be necessary to break the cells away, and the honey will be set running.

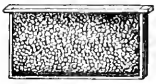
Loss of Heat.—We have often called attention to the loss of heat from the winter nest of bees, by its escape through circulation round the frame-ends of the hive, a fault which has many times been pointed out by us when comparing the bar-frame hive with the common box or skep. In the latter, bees build their comb to the top, and as far down the sides of their hive as they store honey, and they act similarly in the frames of hives; but inasmuch as the frames do not touch the adjacent hive-sides, the heated air, which should be carefully preserved, circulates round the ends of the frames, and is lost. A reference to the woodcut will show our meaning, and convince at a glance; and if our oft-repeated suggestion, that slips of wood, half-an-inch square, were placed between the frames at *a* and *b*, they would cut off the circulation of air, and the upper part of the hive would become an inverted chamber, subdivided by tiers of cells, than which nothing could so well preserve the heat generated by the bees. Bar-framists who will not trouble to try the wooden slips have no idea of their value in winter to protect the bee nest, and in cold spring and summer to prevent chilling of brood, and render hive and super more tenable.



DUMMIES.

We have many times expressed an opinion that the very best dummy for enclosing or narrowing the space occupied by bees, is an old comb, which fills the frame. We were much interested in the observations made by Mr. Baldwin, the recognised expert of the British Bee-Keepers' Association, at the Conversazione in April last, wherein he described his bees as having bred in one side of the outside combs of the bee nest. We had not noticed the fact before, but have seen many instances of the same thing, and the most remarkable feature in the matter is that the bees deem the outermost empty cells sufficiently protective of the brood, for on no occasion under our observation were

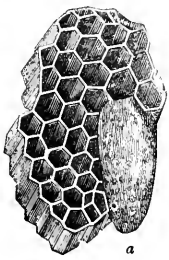
there any bees on the outside of the comb containing the brood, yet it all hatched out in due course. It will be observed, as a rule, that bees do not build comb to the sides of frames any lower down than they store it with honey, so that to make a frame perfect as a means of preventing circulation, it should be closely filled with comb, as in the wood-cut, and



wooden slips should be placed at the frame ends, as indicated in our article on Supering, to stop the passage of heated air around them. Such a dummy cannot possibly be objected to, as, from the evidence just written, it is clearly acceptable to the bees, and admirably fulfils its purpose as a heat-preserver. An empty comb, viewed scientifically, is a double series of air-vessels, in which there is no circulation, and the material of which it is composed is non-conducting, so that, like all the work of the Great Architect and Designer, it is perfectly fitted for the object intended.

INSERTING QUEEN-CELLS.

Many bee-keepers are in difficulties as to how queen-cells may be inserted into hives; but it is really a matter of indifference, provided they be placed so that when hatching there may be no impediment to the queens coming forth. A favourite way with us is to make a circular hole between two combs at the top of the hive, by twisting a knife round, and setting the honey running, then placing the royal cradle point downwards (the position in the wood-cut), in the hole made, so that the point shall be fairly between the combs and the means of exit unimpeded. Sometimes the bees through some delusion raise queen-cells on drone-combs; but such will be useless, as we once found to our cost. They should, therefore, be selected from worker comb, and cut out, care being taken not to injure any part of the cell.



RIPE QUEEN-CELL.

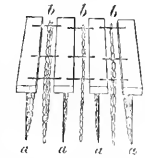
Another way of fixing is, by thrusting one or more pins through the cells that are attached to the queen-cell, and pinning it to a comb; and a third is to invert the hive, press two of the central combs apart, push the queen-cell up between them, and allow them to hold it by pressure, as they return to their natural position. A great fuss is made by many about splicing queen-cells into combs; but as it is a great deal of trouble, and requires to be pinned in, or it would not be safe, we do not recommend the plan, nor do we ever use it.

COMB-FOUNDATION.

(*Continued from page* 26.)

Following our remarks on the depth to which comb-foundation may be safely put into hive-frames, we beg to say that results have satisfactorily proved the measures we suggested to have overcome the difficulties that stood in the way of using deep sheets, and thus another hill-top has been gained in bee *culture*.

The engraving represents portions of four top bars of frames from the centre of the underside of which wax-sheets, *a a a a*, depend, and, as will be well understood, there will be an inch and a half distance (nearly) between them, which ordinarily would be filled with bees, clustering and hanging to the sheets and to each other, and it is to relieve the wax-sheets of their weight that the proposed medium has been devised. *b b b* are diaphragms of wire-work, flattened and hung between the frames, so that by the bees hanging on to it the dragging weight upon the wax-sheets may be relieved.



On Tuesday, June 17, we hived a swarm with four frames fitted with foundation as above explained, three diaphragms of wire as shown above, and two empty frames with simple line of wax. On the evening of the day the bees were found in the empty frames; but by the next morning they had taken possession of the foundation, which was nine inches deep, and have built it out in beautiful order, and we are to-day (Midsummer Day) preparing other full sheets to place intermediately between, in place of the wires. There is no sign of the foundation having stretched or warped: it is beautifully correct, and the wires do not appear to have been the slightest hindrance—in fact, they appear to have been of great assistance as supports, and when lifting them out they were as thickly covered and crowded with bees as if they intended to build upon them. This completely satisfied us that the idea is a valuable one, as it gives all those advantages craved for in the use of comb-foundation. The only wonder is that it has never been thought of before.

SWARMING.

In another part of this *Journal* we have alluded to an old truism amongst bee-keepers, that hot weather produced honey, and moist swarms; and it is a curious fact that such

weather as has prevailed during the past month, while it has prevented the bees gathering a surplus for storing in supers or elsewhere, has given them opportunities during one or two hours of the day to gather just sufficient to enable them to keep up their breeding and send forth swarms. We know perfectly that swarms are in a general sense very scarce, through so many stocks having died, chiefly through neglect and reliance on the 'old-fogey' principle that bees are best let alone, but that does not alter the fact as above stated. It seems strange also that when honey is scarce and they can barely gather the means of existence that the bees should emigrate and leave their parent hive short-handed, and perhaps in a nearly starving condition; while upon themselves they thrust the necessity for the great labour of building a new home when and where materials are scarcest. Although these facts are indisputable there is a crumb of comfort in the knowledge that swarms which establish themselves in such seasons are almost invariably the best to keep, for the reason that being short of honey while building their combs they feel the necessity for worker bees, and therefore build worker comb; whereas if they came forth during a honey-glut they would be principally occupied in gathering it, and building drone or store cells to contain it, and thereafter instead of worker bees being produced, there would be a preponderance of drones, and the hive would 'ne'er do weel.' These hints are, as may be guessed, given in the interest of those who continue the use of hives in which the combs are not moveable, though doubtless they will have an influence with others as showing that whilst swarms are building combs a large supply of honey or syrup is not beneficial, but rather detrimental to the future welfare of the colony.

AMERICAN HONEY.

On page 98 of the *Bee-keepers' Magazine* (American), the Editor, in a note to a letter signed 'Aaron F. Heilman,' says:—

'We, too, are glad that "the shipload of adulteration" turned out to be a mere myth; but, after seeing the numerous slurs in late numbers of the *British Bee Journal* against everything in the bee line coming from America, we can easily divine the source of the false report against Thurber's honey. When such fine samples of comb-honey as that produced by Hetherington, Isham, and others, are denominated "tallow and peppermint drops," and American comb-foundation called "stuff," we come to the conclusion that either John Bull's palate has become paralyzed and his judgment warped, or that supreme selfishness overlaps and smothers his veracity. The same samples were submitted to their eminent chemists, and after a careful analysis nothing could be found but honey.'

The worthy American Editor evidently wants change of air and scenery; there must be something wrong within him, or he would never insinuate that the *British Bee Journal* gave rise to 'the false statement' as to the 'shipload of adulteration' having been seized in England; whereas, the first intimation of it appeared in the *American Bee Journal*, as having been copied from some trade journal, wherein the statement never existed.

Wherein, also, have we 'slurred' everything in the bee line coming from America? or said a single word against anything which was not perfectly justifiable? Let the Editor of the *Bee-keepers' Magazine* give his reasons and his instances, or stand convicted a nameless thing!

Does he mean to deny that a large quantity of American honey (?) was seized in Glasgow, and its vendor fined? and does he mean to pretend that, in the face of that seizure and conviction, we were not justified in suspecting the next consignment from the same parties?

It is true that the analysts could not determine whether it had been adulterated, and we readily gave publicity to their report; but when we, and many others, came to taste the 'fine samples,' mentioned by the captious Editor, we were perfectly reconciled; and we can assure him, and all whom it may concern, that such 'stuff' will not displace English honey, and we very much question if it will find a paying-market here, or dealers foolish enough to send it.—Ed. *B. B. J.*

BRITISH BEE-KEEPERS' ASSOCIATION.

We are desirous of calling our readers' attention to the programme of the proceedings during each day of the Annual Show at the Horticultural Gardens, on July 22 and the two following days.

Tuesday, July 22nd. Judging, 9 a.m. till 12 a.m. Show opens at 12 a.m. Driving competition commences at 2 p.m. At 5 p.m. the quarterly meeting of the Committee for conferring with the representatives of country associations. At 6 p.m., Conversazione; subject for discussion, 'The Plants and Flowers most worthy of Cultivation as Honey Producers;' to be introduced by Mr. W. Ingram, of Belvoir Castle.

Wednesday, 23rd. Show opens at 10 a.m. At 12 a.m. Driving competition continued; displays of manipulations, accompanied by short lectures, given throughout the afternoon at the conclusion of the Driving Contest. At 6 p.m., General Meeting of the Members of the Association. Lord Aberdare, President of the Royal Horticultural Society, has consented to preside at the General Meeting.

Thursday, 24th. Show opens at 10 a.m. Displays and Lectures in the Bee Tent throughout the day. At 5 p.m. Distribution of Prizes by the Countess Brownlow.

The Baroness Burdett-Coutts, President of the British Bee-keepers' Association, will be unable, through absence from England, to distribute the prizes at the close of the Show at South Kensington, on Thursday, July 24th. She has therefore requested the Countess Brownlow to represent her on the occasion,

and that lady has most kindly consented to do so.

DONATIONS TO THE PRIZE FUND.

	£	s.	d.
The Baroness Burdett Coutts	7	0	0
Rev. E. Bartrum	1	1	0
T. W. Cowan, Esq.	1	1	0
R. R. Godfrey, Esq.	1	1	0
F. R. Jackson, Esq.	1	1	0
Captain D. E. Martin	0	11	0
H. G. Morris, Esq.	1	1	0
Rev. H. R. Peel	2	2	0
Messrs. Nunn and Sons	2	2	0
Mr. R. J. Bennett	0	10	6
Rev. J. L. Sisson	0	10	0
G. Walker, Esq.	1	1	0
Mr. S. Simmins	0	10	0
Mr. W. Sells	0	5	0

KILBURN SHOW.

The Judges appointed for the Hives and Honey Department are: the Rev. George Raynor of Hazleigh Rectory, Maldon, Essex; T. W. Cowan, Esq., Horsham, Sussex; W. Carr, Esq., Newton Heath, Manchester. The judging of this department of the Show will commence at 2 o'clock on Monday, June 30th, and the driving competition will take place at 2 o'clock on Wednesday, July 2nd.

SOUTH KENSINGTON SHOW.

We desire to call special attention to the fact that Mr. T. G. Newman, the Editor of the *American Bee Journal*, is to be one of the Judges at the South Kensington Show, and will assist in the judging of hives and supers.

INSTRUCTIONS TO THE JUDGES FOR AWARDING THE PRIZES IN THE DRIVING COMPETITION AT KILBURN AND SOUTH KENSINGTON.

That the maximum number of points be 100.

Time.—For every five minutes over quarter of an hour, deduct five points. For every five minutes over half an hour, deduct ten points.

Queen.—If the queen be not captured in transit, deduct ten points; nor in the receiving skep, deduct twenty points. If the queen be not captured at all, deduct 100 points.

Combs.—For every comb broken loose, deduct ten points.

Judges to have discretion to give not exceeding twenty marks for extra neatness, coolness, &c.

The queen shall be considered as captured only when placed in the box and handed to the judge alive and uninjured.

The points of excellence to be aimed at to be celerity, neatness, coolness under inconveniences, and capture of the queen in her transit to the receiving skep.

BEES AT THE BIRMINGHAM BOTANICAL & HORTICULTURAL SOCIETY'S SHOW, 1879.

We have much pleasure in announcing that arrangements are being made with the British Bee-keepers' Association for holding an exhibition of bee-manipulation at the above Society's show at Edgbaston, on the 8th and 9th of August next, when there will be a very grand flower show and concert. The committee are willing to give 20*l.* in prizes for various objects connected with bee-keeping; and with this 'earnest' of their desire to encourage 'that glorious hobby' we think and hope the bee-keepers of Warwickshire will feel it their duty to support them, and we trust will unite and form a Bee-keepers' Association for the county as a permanent institution.

The Hon. Sec., Villiers Blakemore, Esq., is particularly anxious that this first attempt in Birmingham to popularise and bring apiculture side by side with horticulture shall be a success; and as the Hon. Sec. of the British Bee-keepers' Association has undertaken to conduct exhibitions of manipulation in the tent belonging to the latter on both days of the show, its success may be looked upon as already achieved.

It would greatly strengthen the hands of the local Hon. Sec. (Mr. Blakemore) if all those willing to assist in so laudable an enterprise would communicate with him and form a nucleus out of which a committee (*pro tem.*) could be organized, for we are quite sure that after, if not before the show, a great desire for knowledge of the improved method of bee-culture will be created, which only local associations can properly satisfy. There are many competent bee-keepers in Warwickshire, and to them we cordially commend the present opportunity for taking at the flood the tide that leads to fortune, and by happy union strengthen themselves and create the means of giving tangible help to their poorer neighbours and direct encouragement to humane bee-keeping.

BERKS AND BUCKS BEE-KEEPERS' ASSOCIATION.

We have pleasure in announcing that an Association is being formed for these counties, and that there may be no delay, Mr. Wm. Darby, of 5 St. Stephen's Villas, Windsor, will kindly act as the Secretary *pro tem.** There

* Mr. Darby informs us that his first day's canvassing, limited though his time is through his general duties, procured eleven willing and anxious members; and he is sanguine that three or four exhibitions will be possible during the season, as the managers of the fetes and exhibitions with whom he has come into contact are

are many great gatherings of the local population at Slough, Windsor, and Eton, and often they are graced and honoured by the presence of our Imperial Indian and Queenly British Majesty, or other august representatives; and we fondly hope that some day it may please Her Gracious Majesty, in the interests of humanity, to extend her Royal favour and patronage to bee-culture as now practised. Bee-keepers are intensely loyal—they are liable to ecstasies when a queen-bee is visible, how much more then would they value a sign of approval from their own beloved Queen, whom Heaven preserve!

FORTHCOMING SHOWS, 1879.

See also Engagements of British Bee-keepers' Bee Tent.

June 30th.—British Bee-keepers' Association, at Kilburn, and seven following days; in conjunction with Royal Agricultural Society of England. Entries closed May 1st.

July 3rd.—Tiverton Branch of Exeter Association. Hon. Sec., W. N. Griffin, Rock House, Alphington, Exeter.

9th.—Hitchin, Herts. Rev. H. R. Peel, Hon. Sec., Abbot's Hill, Hemel Hempstead.

10th.—Dunstable. Rev. H. R. Peel, Hon. Sec., as above.

12th.—Leiston Vicarage, Suffolk. Rev. B. W. Raven, Hon Sec.

17th.—Hertford. Rev. H. R. Peel, Hon. Sec., as above.

17th.—The Surrey Association will hold their first Show of Honey, Bees, and Bee-furniture in Clandon Park, kindly permitted by the Right Hon. Earl of Onslow. F. H. Lemare, Esq., Hon. Sec., Sidney Terrace, Guildford.

22nd and two following days. — British Bee-keepers, at Royal Horticultural Gardens, South Kensington, in connexion with their Flower Show. Rev. H. R. Peel, Hon. Sec, Abbot's Hill, Hemel Hempstead, Herts.

26th.—Burton-on-Trent. Rev. W. C. Owen, Hon. Sec.

29th and three following days. — Caledonian Apiarian and Entomological Society, at Highland and Agricultural Society's Show, Perth, N. B., Hon. Sec., R. J. Bennett, 50 Gordon Square, Glasgow.

August.—Central Show at Exeter, date not fixed. Hon. Sec., W. N. Griffin, as above.

August.—Halberton Branch of the Devon and Exeter Bee-keepers' Association, date not fixed. Hon. Sec., W. N. Griffin, as above.

8th.—Berkeley Flower Show, Gloucestershire.

8th and *9th.*—Edgbaston, Birmingham, Villiers Blakemore, Esq., Edgbaston, Hon. Sec.

13th.—West Herts, Watford. Rev. H. R. Peel, Hon. Sec., as above.

14th.—St. Mary Cray. J. Garnet, Hon. Sec., Hockenden, St. Mary Cray.

20th.—Devon and Exeter Bee-keepers' Association Show at Plymouth, in connexion with the Royal Western Horticultural Society. Hon. Sec., W. N. Griffin, as above.

20th and *21st.*—Shropshire, at Floral and Horticultural Show, Shrewsbury. Rev. Hon. C. Feilding, Hon. Sec., Stapleton Rectory, Shrewsbury.

26th.—Long Buckby.

29th and *30th.*—Arbroath, N. B. J. Stewart, Hon. Sec., Arbroath.

September 3rd.—Much Hadam, Ware, Herts.

4th.—Horsham, Sussex.

4th, 5th, 6th.—East of Scotland, Dundee. Hon. Sec., W. Raitt, Bee Croft, Blairgowrie, N. B.

9th.—Warwickshire at Atherstone.

17th and *18th.*—Lincolnshire Bee-keepers' Association, in connexion with the Long Sutton Agricultural Society. Hon. Sec., R. R. Godfrey, Watergate, Grantham.

October 1st and *2nd.*—Hertfordshire County Association, Hemel Hempstead, Rev. H. R. Peel, Hon. Sec., as above.

NOTE.—Hon. Secs. should study this list, and, by timely arrangements, make it quite complete, and endeavour to avoid clashing.—ED.

ENGAGEMENTS FOR THE BEE-TENT FOR 1879.

June 30 to July 7.—Royal Agricultural Show The place selected for the Exhibition of bees, hives, and honey at the Royal Agricultural Show is adjoining the Horticultural Exhibition in the Show grounds.

July 9.—At Hitchin Flower Show.

July 10.—At Dunstable Horticultural & Poultry Show.

July 17.—Hertfordshire County Bee-keepers' Association Show at Hertford.

July 17.—Surrey County Bee Show at Clandon Park, Guildford.

July 22-24.—British Bee-keepers' Association Annual Show.

July 24.—Winslow Horticultural Show.

July 26.—Burton-on-Trent Horticultural Show.

July 29.—Shendish Flower Show, Hemel Hempstead.

July 29 and three following days.—Royal Caledonian Show at Perth.

Aug. 8.—Berkeley Flower Show, Gloucestershire.

Aug. 8 and 9.—Horticultural Show, Botanical Gardens, Edgbaston, Birmingham.

Aug. 13.—West Herts Horticultural Show at Watford.

Aug. 14.—St. Mary's Cray Bee and Honey Show.

Aug. 20 and 21.—Shropshire Horticultural and Bee and Honey Show at Shrewsbury.

Aug. 21.—Sevenoaks Horticultural Show.

Aug. 26.—Long Buckby Horticultural Show.

Sep. 3.—Much Hadam Ware Cottage Garden Show.

Sep. 3.—Rickmansworth Flower Show.

Sep. 4.—Horsham Flower Show, Sussex.

Sep. 9 and 10.—Warwickshire Agricultural Show at Atherstone.

Sep. 11.—Harpenden Flower Show.

Oct. 1 and 2.—Hertfordshire County Bee-keepers' Show at Hemel Hempstead.

Other engagements are in course of arrangement.

simply delighted with the prospect opened out. We shall spare no pains to further so desirable an object.—ED. *B. B. J.*

SURREY BEE-KEEPERS' ASSOCIATION.

This Association will hold its first Apiarian Exhibition on the 17th July, 1879, in the beautiful grounds of Clandon Park, Guildford, by the kind permission of, and under the distinguished patronage of, the Earl and Countess of Onslow. The Schedule of Prizes offered will be found in our advertising column. It is not ostentatious, but keeps well in view the object for which all such associations are formed, viz., the improvement of bee-keeping amongst cottagers, with the hope of bettering their condition, and for the advocacy of humanity to the industrious bees. It will not, therefore, be surprising that the prizes are chiefly offered to cottagers; and we fain hope, to cottagers of the County only, so that interest in the Association and Show may not be damped by an overwhelming rush from outside, for, when the game is exposed, eagles and hawks will assuredly come and carry away the best of it. The Hon. Sec. is W. Lemare, Esq., Sidney Terrace, Guildford, to whom all communications should be sent.

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee meeting held at the Council Room of the Society for the Prevention of Cruelty to Animals, 105 Jermyn Street, St. James's, on Wednesday, June 11th. Present, Mr. T. W. Cowan (in the chair), Rev. E. Bartrum, Mr. J. P. Jackson, Mr. J. Hunter, Mr. J. M. Hooker, Mr. F. Cheshire, and the Rev. H. R. Peel (hon. secretary).

The minutes of the last meeting were read and confirmed. The Balance Sheet for the month ending May 31st was also read, as follows:—

	£	s.	d.
Income: Amount brought forward on May 1st	95	5	7½
Amount received from May 1st to May 31st	49	3	6
	144	9	1½
Expenditure: Amount brought forward on May 1st...	14	12	1½
Amount expended from May 1st to May 31st	4	12	10
	19	4	11½
Balance in hand	£125	4	2

The Secretary reported that all the gentlemen selected at the last committee meeting to act as Judges at the South Kensington Show had consented to do so. The committee selected the Judges to the several classes as follows:—

Hives and Supers.—*Classes* 1 *to* 5—Rev. J. D. Glennie, W. B. Tegetmeier, W. Freeman, T. F. Ward, T. G. Newman.

Bees (*Classes* 6, 7, 8) and Foreign and Colonial Honey (*Classes* 20, 21, 22).—Mr. W. Carr, Mr. J. G. Desborough, Rev. F. T. Scott.

English Honey.—*Classes* 9 *to* 19.—Mr. R. Symington, Mr. B. Harding, Mr. H. Bostock, Rev. C. Fielding, Capt. Kettlewell.

Miscellaneous Classes.—Rev. J. L. Sisson, Mr. C. Tite, Mr. F. R. Jackson, Mr. D. Stewart, Mr. C. E. Fletcher.

British Bee Flora (*Class* 28).—Mr. W. Ingram, of Belvoir Castle; Mr. Barron, of Royal Horticultural Society; Dr. Hogg, editor of *Journal of Horticulture*.

Driving Competition.—Mr. W. Carr, Mr. J. G. Desborough, Mr. C. Tite.

The Secretary announced that the applications for the use of the Bee Tent at various shows in different parts of the country were becoming so numerous that notwithstanding another tent was in course of construction for the Hertfordshire Association the applications would have to be refused unless further preparations were made for this purpose. It was unanimously resolved that an extra screen should be provided for manipulating purposes at horticultural and other shows.

It was also resolved that each member of the Association who had paid his subscription for the current year should receive an admission ticket to witness one display in the Bee Tent at the South Kensington Show.

SHROPSHIRE BEE-KEEPERS' ASSOCIATION.

The third annual exhibition will be held at the Shropshire Floral and Horticultural Show, Shrewsbury, on Wednesday and Thursday, August 20th and 21st, 1879. A liberal schedule of prizes is offered for bees, hives, and honey, amounting to 17*l.* 5*s.*, open to residents in Shropshire only,* except as regards hives, &c., for which Nos. 3, 4, and 5 are offered as follows:—(3) For the best and cheapest hive on the moveable principle, in wood or straw, complete, with covering for supers, any number to be supplied at price named, 1*l.* and 10*s.* (4) For the best collection of hives and bee furnitnre, gear and appliances, no two articles to be alike, 2*l.* and 1*l.* (5) For any new and useful invention for the advancement of bee-keeping, 1*l.* Full particulars may be obtained of the Hon. Sec.; all communications to be marked 'S. B. A.,' and when an answer is required to be accompanied with an envelope, stamped and directed. Hon. Secretary's address—The Rev. Hon. C. Feilding, Stapleton Rectory, Shrewsbury.

Report, 1878.

The second annual exhibition of bees, honey, and apicultural appliances was held on Wednesday and Thursday, August 14th and 15th, 1878, in connexion with the Horticultural Show in the Quarry. The competition was certainly better than on the preceding year, and the interest which it drew forth was considerable among the thousands who visited the show. Much more yet remains, however, to be done to make the objects of the Association better understood. Among people in general, the return which may be gathered from one stock of bees by care, ingenuity, and perseverance, is little known. It is not at all uncommon in the present day to obtain 100 lbs. of honey in one hive; indeed, this was doubled in the past year. Of course, so large a return can only be obtained by the use of moveable bar hives and the honey extractor; neither of these, however, are now costly, but within the reach of even the labouring classes.

We are glad to see that the cash account shows a favourable balance on the right side.

ARBROATH HORTICULTURAL SOCIETY.

Prizes for Bees, Honey, Appliances, &c.

The East of Scotland Bee-keepers' Society offer a liberal list of prizes for bees, honey, appliances, &c., in conjunction with the Arbroath Horticultural Society's

* This effectually and sensibly prevents the depression caused amongst local bee-keepers by the incursions of 'foreigners,' who in former years have swept country shows of all their best prizes. We hope local Associations will keep the idea well in mind.—Ed.

exhibition, to be held within the New Public Hall, Arbroath, on Friday and Saturday, August 29th and 30th, 1879. This competition is open to members of Arbroath Horticultural Society and East of Scotland Bee-keepers' Society; and the rules for competition will be the same as those of the East of Scotland Bee-keepers' Society. Intending competitors must apply to the Acting Secretary, Mr. John Stewart, Letham Mill, Arbroath, and return their entry forms not later than the 25th day of August next.

ST. MARY CRAY SHOW.

The Cray Valley District Branch of the British Bee-keepers' Association will hold its first exhibition of honey, bees and appliances, and practical apiarian manipulations, in conjunction with the Orpington, St. Mary Cray, St. Paul Cray, and Chelsfield Cottagers' Horticultural Society, in the paddock of W. May, Esq., Northfield, St. Mary Cray, on Thursday, August 14th, 1879. For schedule of prizes and further particulars apply to Jesse Garratt, Hon. Secretary, Hockenden, St. Mary Cray.

PETERBOROUGH AGRICULTURAL SHOW.

(*From the Peterborough Standard.*)

One of the most interesting extraneous features of the day's proceedings was the exhibition by the British Bee-keepers' Association in a small marquee, specially made for experiments with bees. A common hive of bees was obtained from Mr. J. House's apiary, and manipulated by Mr. Baldwin, the expert of the society, who showed how bees could be made to swarm and their rich stores saved in a most simple manner. Mr. F. Cheshire, of Acton, and Mr. J. G. Desborough, of Stamford, explained the different modern modes of treating bees, and gave any information sought by inquirers.

SURREY BEE-KEEPERS' ASSOCIATION.

Bees at Croydon Show.

On Wednesday, June 25, an exhibition of bees, honey, &c., took place, in connexion with the Croydon Flower Show, in the grounds of Wellesley House, kindly lent by J. T. Balfour, Esq. The weather was very rough during the morning, and the mud most profuse; but the latter part of the day was fine and clear, and the attendance of visitors large, and a pleasant evening was the consequence.

For Bees there were three entries: Messrs. Abbott Bros., with an observatory hive of Ligurian bees; Mr. Baldwin, with a bar-frame hive, and Miss F. Cudden, with a skep, both containing black bees. Mr Cheshire was the judge, and disqualified Messrs. Abbott Bros., and gave equal first to the other two. The observatory and the beautiful Ligurian bees were an object of great interest during the Show.

In Class 2, for cottagers only, for the best and strongest skep filled with bees, &c., Miss A. Holman was first, Mr. Dudley second, and Mr. Fowler third.

In Honey, Classes 3, 4, 5, for cottagers, there was no award, and only one exhibit—a small skep which contained brood only, and some empty queen-cells. The exhibitor was very indignant at not receiving a prize; but, evidently, he did not know the difference between sealed brood and sealed honey.

Class 6 was a honey-counter, at which little business was done.

Class 7, for wax in any form, Abbott Bros., with some beautiful samples of comb-foundation.

Class 8, for hives, price not to exceed 10s. Mr. Fuggle was awarded first prize; Abbott Bros. highly commended. Mr. Holland was also an exhibitor.

Class 9—Supers. Mr. W. Holland received first prize, at which no one was more surprised than himself.

Class 10. The driving competition produced two competitors only, Mr. J. A. Abbott (of the firm of Abbott Bros.) and Mr. J. S. Baldwin, the well-known expert of the British Bee-keepers' Association. The former was, however, the winner, he having driven out the bees and captured the queen in six minutes; while Mr Baldwin, who drove the bees well enough, but failed to find the queen (one of the necessities of the competition), could not take a prize It is a great 'sell,' when, after driving out the bees, queen-cells are discovered in the hive, proving that the bees had swarmed, or lost their queen some days before. Nevertheless, as each competitor provided his own bees, the competition was perfectly fair, though 'luck' was a prominent element in it. Messrs. Neighbour & Sons exhibited a collection of hives and appliances, and Mr. Finlay a collection of straw skeps.

Altogether the Exhibition was a decided success, though why a unicomb Observatory hive, stocked with Ligurian bees, was disqualified, 'na fellah' (*pace* the Judge) can understand.

THE VALUE OF DIFFERENT RACES OF BEES.

Translated from the Eichstädt Bienenzeitung, No. 10.

Ever since we have become acquainted with, and introduced various foreign races of bees, the colour of some of which differs in a striking manner from that of our native bees, apiculture has become considerably more interesting and profitable. Many questions on which formerly opinions were very much divided, are now capable of being solved in a simple way. If Baron Ehrenfels were still alive, he would no longer venture to express the opinion, that worker bees might attain the age of the queen, and consequently live for several years, if they escaped from all the dangers to which they are exposed. For, any one who has introduced into a colony of bees a queen of a differently coloured race knows how soon the worker bees disappear, and will have noticed that during the busy time of the year it hardly takes six weeks for the old generation of bees to die out and a new one to appear and take their place. The question formerly so much discussed and often with a good deal of bitterness, as to whether the queen is fertilised outside the hive only, and often at a great distance from it, and whether she also lays the eggs from which the drones originate, is now no longer raised since other races, and especially the Italian bees, have been introduced. Such an important ratification and enlargement of the theory of apiculture could not, of course, remain without a favourable influence on the management of bees, and indirectly contribute to the realisation of larger profits from the pursuit of keeping bees.

But the introduction of foreign races of bees has also been of direct benefit, as many of them possess valuable qualities, of which our native bee is more or less deficient.

The common black bee, which is met with in most parts of Germany, possesses many excellent qualities. It is indeed a honey-bee. I consider it a very valuable peculiarity of these bees that their young queens lay no drone eggs during the first year, and the worker-bees therefore make no drone cells either. When it was stated by Bruening, in some of the earlier numbers of the *Bienenzeitung*, that second swarms which had scarcely half filled their hive with comb, had made remote preparation for swarming by breeding drones, I could hardly believe it, as at that time I was unacquainted with the exceptional peculiarity of the heath bees, some colonies of which with queens of the present year indeed make preparations for swarming by producing drones. With the common German bee this is never the case, for which reason they do not swarm much, but they are honey-bees in the proper sense of the word.

Their slight disposition to swarm, however, is not appreciated by those bee-keepers who aim at increasing the number of colonies in their apiary. The irritability

of our native bees and also their great inclination to sting may frequently render bee-keeping very disagreeable. Although an experienced bee-keeper does not mind a few stings, still his patience is at last exhausted, when he finds that his bees become so irritable, that all work, however pressing, has to be suspended, and man and beast in the neighbourhood are obliged to take to their heels, and then finally he may expect the police to interfere and order the removal of the hives, to save the neighbourhood from being molested by the bees.

It must therefore be considered a great advantage that we are now acquainted with races of bees, which, although provided with a sting like our native bees, yet use this weapon but rarely and only when very greatly irritated, and they are incapable of such an outbreak of rage as we have just mentioned. Of the most gentle bees may be named the Carniolan and Italian bees. The former, in addition to their gentle nature, show a great disposition to swarm, the latter are distinguished by their extraordinary industry, their capability of defending themselves against attacks by robbers, and the large quantities of honey they collect, in which they certainly surpass the capabilities of our native bees.

The advantage of the introduction of foreign races of bees, however, is not only to be found in the good qualities and superiority of the latter, but also in the difference in colour. Generally speaking, we may grant the correctness of the maxim, that success depends, not on the colour of the dress, but on the capacity for work. Still a decided difference in colour is also no mean practical advantage. A Hungarian bee-keeper, in a letter which I received from him, states, that in his opinion the Italian bees are valuable chiefly on account of the remarkably bright colour of their queens, which greatly facilitates their being easily discovered among the bees. The following example will illustrate the advantage of being able to distinguish queens, more or less pure, from one another by their colour. Some of the colonies in my apiary at Carlsmarkt had become somewhat reduced in population during the winter, and in order to strengthen them I deprived several populous stocks in my distant Bankwitz apiary of a quantity of bees, which I crushed into a box. When I got home I discovered to my regret that I had brushed off a queen with the bees. The weather being cold the operation had to be performed quickly, and as I had removed no combs from the brood-room, where the queen generally resides, I did not suspect the presence of the queen upon the combs which I took out of the hives. What was to be done now? Having taken bees from four or five hives, which colony did the queen belong to? I was not long in doubt; of the colonies which I had deprived of bees, two were pure Italians, one colony was tolerably pure, and one only contained rather dark bees. I guessed at once that the queen which was also of a rather darkish complexion belonged to this stock, and my supposition proved correct. When I returned to my distant apiary on the following day, I found the colony in question without a queen, and on putting her back into the hive she was joyfully received, and thus the mistake was made good, which might easily have caused me the loss of a good colony. The queen of a swarm might fall to the ground, a queen returning from her wedding trip might by mistake enter the wrong hive and still be liberated unhurt from the bees surrounding her, or she might slip down the combs unperceived during their temporary removal from the hive and be discovered afterwards. I need not, therefore, enter into further particulars to show how important it is, to know with certainty which hive she belongs to. If we kept only one race of bees this would be a most difficult thing, but when at the same time we keep another kind, especially the strikingly differently-coloured Italian variety, we possess so many distinguishing marks not only in the strength and form of body, but also in the difference in the colour, that we are able recognise with tolerable certainty among a considerable number of queens, any queen which we have seen but once and when found restore her to her colony.—(Signed) DR. DZIERZON, *Carlsmarkt, 14 April*, 1879.

CLIMATIC INFLUENCES.—WHAT A DIFFERENCE!

While, according to the statements of men of science, the succession of changes of climate, consequent upon the change of seasons, takes place more regularly in many parts of the world, and more especially in tropical countries, in our own country the variations of climate are very great. This is especially the case as regards springtime, which sometimes commences early and sometimes late, and is otherwise very variable.

It will, perhaps, hardly be possible to determine the real cause of this difference, as the length of the days and the position of the sun in the heavens, as well as the power of radiating heat, remains the same from year to year. In my opinion the best explanation that can be given is, that when the masses of ice in the northern regions begin to move, a larger or smaller number of these blocks or icebergs are driven by storms towards our shores, and we feel their effect in the prevailing low degrees of temperature.

Although this changeable weather affects every agriculturist, still more does it affect bee-keepers, for no other branch of industry is so entirely dependent upon weather as apiculture. Other branches of agriculture may still succeed in spite of high winds, cloudy sky, low temperature, &c. &c.; but bees are unable to collect honey and pollen if the temperature of the air be only one degree less than that at which they are able to work continuously; and if nevertheless they venture out visiting flowers the injury through loss to the colonies will probably be greater than any benefit to be derived from such excursions.

Of what bees are capable of doing early in the year, if the weather is favourable, we had proofs in 1848, the year of Revolutions. Though I do not keep regular accounts of the state of the weather, still many events, from their being out of the common, produce such vivid impressions upon the mind that they are remembered long afterwards. In the year referred to, the warm weather set in so early that at Easter (about the 20th April) the blossoms of the bilberry were falling off after the bees had collected large quantities of honey from them. In my apiary at Bankwitz, the bees had gathered so much honey in April from a field of rape in the neighbourhood that towards the end of that month I was obliged, in order to give the bees more room, to empty the honey compartments filled by them with new combs which they had stored with honey. The hives were completely full of bees, and capable of giving off swarms at this early time of the year.

When I think of this and compare it with the sad state the stocks are in at the present time (nearly the middle of May), I feel inclined to exclaim: 'O jemin jemin, quanta mutatio rerum!' (How things have changed!) A greater contrast can hardly be imagined than a comparison of the spring of the present year with that of 1848, as regards the progress of the colonies. I do not remember breeding having commenced so late, and the development of the colonies altogether being in such a backward state for many years past. When the weather is seasonable the bees in the hive at this time of the year are generally numerous enough to cover their combs completely, and any parts of comb which the bee-keeper may have cut away will be found to have been replaced by them, but at present they are still concealed between the combs. The population of the hives is much less than what it was in March, and they scarcely have as much brood now as is usually met with in the hives in the month of February when the winter has not been too

severe. Our actual winter the bees survived in tolerably good condition, but the second winter we have passed through has proved more disastrous to them, and so has the spring until now. The very elements seem to have broken loose. It is reported from Szegedin, which town has been visited with such a dreadful inundation, that even after the dreadful catastrophe the works for repairing the dams to protect the town were repeatedly destroyed by the agitated floods; here also frightful storms have been raging, blowing off and destroying the roofs of the hives in my apiary, knocking down entire piles of hives and otherwise damaging them.

The heaviest loss, however, will be due to the present unusually depopulated state of even the largest colonies; the bees from sheer necessity rush out of the hive impatiently during a moment of sunshine, and perish in large numbers on these excursions; and while pasture would be plentiful, if only the weather were favourable, we are now obliged to go to the trouble and expense of feeding the bees in order to keep them alive. They were not able to utilise to any extent the flowers of the hazel, the aspen, the willow, or the cowslip, nor the very melliluous blossoms of the gooseberry, the flowering time of which is now nearly over. Their visits to the gooseberry blossoms were limited to one fine day, the consequence being that when on the following cold days they again left their hives, most of them were lost. The bilberry is at this moment in full flower, and is a great attraction to bees in the neighbourhood of woods and forests, on account of the quantity of honey it yields; but its time of flowering will probably also pass without being utilised by the bees, for the temperature is so low that we had a fall of snow here last night, which indeed disappeared from the ground the next day: still, an intensely cold north wind continues to blow, which makes it impossible for any bee to show itself outside the hive: and, so far, there does not appear any prospect of an immediate improvement in the weather.

This deplorable state of things affects me most painfully, because I had engaged to supply fertile queens, or small colonies of the beautiful, gentle, and industrious Italian bees. I am quite willing to fulfil my promises; but it will perhaps be a month later than I should have been able to execute the orders, if the season had not been so exceptional—circumstances indeed are stronger than the will of man. Man is powerless against the forces of nature, and compelled to put up with what is beyond his power to alter. I trust, then, that bee-keepers will not lose patience in these trying circumstances, but look forward to better times, which surely will succeed this unusually bad season. The Latin proverb is, *Post nubila Phœbus*, or, as we say in German, *Auf Regen folgt Sonnenschein*. (After rain comes sunshine.)

(Signed) Dr. Dzierzon.

Carlsmarkt, St. Pancras' Day, 1879.

SINGULAR DEATH AT PETERBOROUGH.

Swallowing a Bee and Poisoned by Ammonia.

A most extraordinary fatality occurred in Peterborough on Sunday, the deceased being Mr. John House, father of Mr. House, confectioner and horticulturist, at whose nurseries at Eastgate he had for many years resided. On Sunday afternoon, between three and four o'clock, the deceased was taking a walk in the gardens near his house when a bee stung him on the tongue, flew into his mouth, and went down his throat. He seemed not to have told anyone of the occurrence at the time, but to have resorted for relief from the pain to a strong solution o ammonia kept on the premises for the purpose of destroying the virus of bees, there being an apiary near. Seeing that he had swallowed the bee, he was under the impression that a dose of the antidote was necessary, and he accordingly swallowed a whole table-spoonful of ammonia. Unfortunately, although he got much worse after taking the poison, he did not complain sufficiently to induce his friends to send for medical aid until half-past six o'clock, just three hours after the occurrence. Dr. Thomson, who was called in, found his patient in a serious state, and at once gave an unfavourable opinion as to his recovery. Subsequently Dr. Miller, assistant to Dr. Thomson, also attended, but their combined efforts to save life were unavailing. It is probable that had he, soon after drinking the ammonia, taken a pint of milk or water, the poison would have been sufficiently diluted as to have had no fatal effect. However, as that was not done, more extreme remedies had to be used. These, however, were alike ineffectual. When Dr. Thomson first saw the deceased he was in violent pain, and was raising a frothy mucus mixed with blood. His tongue and throat, too, were highly congested and inflamed. Acid drinks were given him, the white of an egg, olive oil, &c., but nothing seemed to reach his stomach. He died at two o'clock in the morning from a stoppage of the air-passages, which caused suffocation. For at least four hours before he expired he knew there was no hope. The deceased, who was a fine specimen of his race, was eighty years of age, and Monday, the very day that he died, was the fiftieth anniversary of his marriage. His widow is between seventy and eighty years of age. The Coroner (E. Vergette, jun., Esq.), having inquired into the facts, deemed an inquest unnecessary.—From the *Peterborough Standard, June 14th*, 1879.

Regarding this sad affair, the following remarks by the Editor appeared in the same paper as a leader:—

'At the ripe old age of eighty, Mr. House, father of several of our business fellow-townsmen in Peterborough, has been taken from amongst us by a most painful accident—painful because of the intense suffering it entailed, and also on account of its remediable, if not preventable character. On Sunday evening he was enjoying the refreshing air of the Eastgate nurseries when a common domestic bee flew into his mouth, stung him, and went down his throat. He does not appear to have been particularly alarmed at the occurrence. He had probably been stung by bees hundreds of times before, and consequently he would think but lightly of the sting. The presence of the bee in his stomach, however, evidently caused him considerable misgivings, as he forthwith swallowed a quantity of ardent ammonia, sufficient, undiluted, to kill him. Had he not taken that stringent poison he might have been living now. The body of a bee in itself could not possibly have done any harm and the virus of its sting would soon have disappeared. Unfortunately, however, without advice, he drank the ammonia as an antidote, and died within twelve hours. The lamentable occurrence shows how careful persons should be in dealing with strong solutions; and it is a question whether, although ammonia is not strictly a poison under the Act, it should not bear a label cautioning the public against its dangerous nature. One might almost as reasonably drink a bottle full of whisky as a table-spoonful of ammonia. Perhaps this fact is not generally known. Had it been, we might not now have had to regret the close of a useful octogenarian life.

COOK'S 'NEW MANUAL OF THE APIARY.'

We regret that we were prevented giving our promised remarks on the above, through having parted with the volume in possession, and being unable to obtain another copy. All that had been imported to England had been sold, and it would seem that the American demand was so great as to prevent a further importation reaching us until the middle of June, when the pleasing duty devolved upon us.

The introduction shows,—'Who may keep bees,

Specialists, Amateurs, Who are interdicted, Inducements to Bee-keeping, Recreation, Profit, Excellence as an amateur pursuit, Adaptation to women, Improvement of the mind, &c., Yield of delicious food, *What successful bee-keeping requires*, Mental effort, Experience, Learning from others, Aid from conventions, Aid from bee publications, Promptitude and Enthusiasm;' and a perusal of the views expressed by the author, while affording intense pleasure to the reader, cannot fail to be of great value to the intending bee-keeper. Here is a specimen, among many, under the heading PROMPTITUDE, that we heartily endorse.

The writer says :—

'Another absolute requirement of successful bee-keeping is prompt attention to all its varied duties. Neglect is the rock on which many bee-keepers, especially farmers, find—too often—that they have wrecked their success. I have no doubt that more colonies die from starvation than from all the bee maladies known to the bee-keeper. And why is this? Neglect is the apicide. I feel sure that the loss each season by absconding colonies is almost incalculable, and whom must we blame? Neglect. The loss every summer by enforced idleness, just because room is denied them, is very great. Who is the guilty party? Plainly neglect. In these, and in a hundred other ways, indifference to the needs of the bees, which require but a few moments, greatly lessens the profits of apiculture. If we would be successful, promptitude must be our motto. Each colony of bees requires but little care and attention. Our very interest demands that this be not denied, nor even granted grudgingly. The very fact that the required attention is slight, renders it more liable to be neglected; but this neglect always involves loss, often disaster.'

The work throughout is full of highly useful information, and being written by one who has no hive of his own to vaunt, his observations in this respect are doubly valuable.

On page 122 the author says, in treating of hives :—

'I feel free to say, that no person who reads, thinks, and studies—and success in apiculture can be promised to no other—will ever be content to use the old box-hive. In fact, thought and intelligence, which imply an eagerness to investigate, are essential elements in the apiarist's character; and to such an one a box-hive would be valued just in proportion to the amount of kindling wood it contained. A very serious fault with one of our principal bee books, which otherwise is mainly excellent in subject, matter, and treatment, is the fact that it presumes its readers to be box-hive men. As well make emperors kings, and chivalry the basis of good government, in an essay written for American readers. I shall entirely ignore box-hives in the following discussions, for I believe no sensible, intelligent apiarists, such as read books, will tolerate them, and that supposing they would, it would be an expensive mistake, which I have no right to encourage, in fact am bound to discourage, not only for the benefit of individuals, but also for the art itself.'

'To be sure of success the apiarist must be able to inspect the whole interior of the hive at his pleasure, must be able to exchange combs from one hive to another, to regulate the movements of the bees, by destroying queen-cells, by giving or withholding drone-combs, by extracting the honey, by introducing queens, and by many other manipulations to be explained, which are only practicable with a moveable-frame hive.'

We shall from time to time make extracts from this useful work, in the meantime we commend it to our readers.—ED. *B. B. J.*

LECTURE ON BEES: THEIR HUMANE AND PROPER TREATMENT.

BY MR. BALDWIN.

(*From the Cornishman of June 5.*)

Any one who had the good fortune to hear the very practical lecture, and to witness the skilful manipulation of the bees, by the representative of the British Bee-keepers' Association of May 30th in the Showfield of the Penwith Agricultural Society at Penzance, will not soon forget the valuable lessons he learnt on that occasion. First let us describe the show. Entering an ingeniously-contrived tent, the spectators were accommodated with standing room, three or more deep, around an inner compartment, screened off by a black netting, so peculiarly constructed that it looked like perforated zinc. Within this area stood Mr. Baldwin, and he had with him a deal table, a model wooden hive, a bucket of water, a flexible puffer for tobacco-smoke, a small tin scoop, a full straw hive, an empty one, and a patent rotary machine, something like a small churn, for extracting honey from the comb. Before commencing operations he favoured the company assembled with a few sound and sensible remarks upon the anatomy of the bees (illustrating them by means of large-sized coloured plates), also describing the habits, instincts, and peculiarities of the honey-bee, dwelling upon the duties of the queen, the workers, and the drones, in a manner both popular and interesting. The laying o 2000 to 3000 eggs *per diem*, the hatching, development, and death of the bees, their work, food, protection from damp and cold, capabilities of increase, swarms, and general management, all came in for a share of notice. He deprecated the system of using straw hives, placing them upon sods of turf, which caused damp and harboured wood-lice, breaking up of comb, the cruel and unnecessary destruction by sulphur-fumes of the workers, and advocated the prevention of successive swarms by promoting large colonies, giving plenty of room for as many as three ordinary hives would hold, and affording opportunities of frequent and easy inspection, so as to judge of the condition, accommodation, and need of the food of the numerous family. He showed how, by this plan, a cottager might easily make a sum of 3*l*. by each hive, and produce perfectly pure honey of a delicious quality, instead of the too common mixture of cell-tissue, grubs, dead bees, and honey, usually sold as pure honey—a mess such as every true bee-master would repudiate.

Mr. Baldwin next prepared to put the principles he had avowed to the test. First he bared his arms to the elbows and washed them in the bucket of water, to show that he used no syrup or mixture to attract the bees. Taking a hive full of comb, of the ordinary straw or skep sort, he turned it upside down upon the table, mouth upwards, and attached an empty skep to it by means of iron clamps in such a manner that the spectators could witness his operations. The upper skep fitted to the other something like a visor to a helmet. A puff or two of tobacco smoke now and then down between the comb, and gentle but continual tapping at each side of the hive, drove the bees upwards very quickly, and caused a great commotion. This the operator humorously compared to the inhabitants of a city being startled by an earthquake and quitting their houses, partly out of curiosity and partly for safety. The vibration soon caused the humming inmates to come up and pass into the empty skep like a swarm. Meanwhile Mr. Baldwin was anxiously looking for the queen, but in consequence of his attention being taken off by giving explanations and answering questions, he could not keep up so close an inspection as was necessary, for it soon became manifest that his watch had not been strict enough to enable him to detect her majesty. However, he was quite equal to the

occasion; for, after detaching the skep and carrying it round with the swarm now clinging to the inside, he took a shovel-full out and poured them upon his hand and arm, showing how harmless the bees were if the person interfering with them was calm and self-possessed. Spreading a piece of brown paper upon the sward, he then turned out all the bees upon it, and, kneeling down, searched, and soon found the queen-bee among them. The queen-mother is worth our attention certainly. She is considerably longer in the body than either the drone or the worker. The prevailing colour in all three is the same—black, or black-brown. The head is not larger than that of the workers; but the tongue is shorter and more slender. Mr. Baldwin placed the queen-bee in his mouth to show how harmless she was. Indeed, all the time these operations were going on he was surrounded by a large number of bees, many of which settled upon his face, arms, and neck without stinging. This he attributed to his fearlessness and his freedom from agitation and excitement. A heap of bees still remained upon the floor; but when the operator replaced the queen-bee in the hive-skep, a general rush of her subjects commenced after her, in a way which was most amusing. Some people were under the impression that this was to be an exhibition of trained or tamed bees, something after the fashion of the 'industrious fleas;' but the bees in this case were brought from the neighbourhood and were unknown to the professional 'bee-master.' Those who witnessed his clever management of the insects were satisfied that there is a right way and a wrong way of dealing with bees, as there is with everything else; and it is hoped much benefit to the county will result from this very instructive lesson in the art of the humane treatment of the hive-bee.

A good swarm of bees, we are told, should weigh 5 lbs. and number from 20,000 to 35,000 bees. The wretched 1½lb. and 2lbs. swarms one daily sees shaken into hives, are, as Mr. Pettigrew says, 'not even worth the worthless hives they are put into.' Small and weak swarms are seldom or ever able to live through the coming winter. A newly-purchased swarm, with proper care, will yield from 15lbs. to 20lbs. of virgin honey, value from 20*s.* to 25*s.*, and the following year the profits from the hive will increase to 3*l.* There is, therefore, probably no occupation that will make so large a return for the expense and trouble as bee-keeping. The most simple and uneducated may practise it as successfully as the educated. It is a study well deserving of the attention of the rich and poor alike, and affords interest to the one and profit to the other. Any industrious cottager living by the roadside, and having a small garden, may realise a handsome sum of money by bee-culture, and thus gain an honest living, while, at the same time, he maintains a spirit of independence. The first principles to be understood seem to be,—large hives, so as to prevent a numerous and weakly succession of swarms; judicious and systematic feeding, during wet weather and at night time with a little sugar and water syrup; warm, dry situation; avoiding all useless destruction of life, the honey being as easily taken without the sacrifice; the extraction of the honey, without injuring the comb, and so making it useful again. The old policy of sulphur-poisoning is suicidal, because you destroy that life on which the profits of the following year so much depend.

It may be mentioned that the British Bee-keepers' Association, in sending a representative to the Penwith Agricultural Show, was influenced by philanthropic motives only, and this disinterested conduct deserves the thanks of the community. The receipts of the day would not pay the railway expenses of the lecturer. Several gentlemen were so deeply interested and delighted with what they saw and heard, that they think seriously of trying to induce, by influential and substantial representations, the Association (of which Baroness Burdett-Coutts is president) to give another opportunity to the inhabitants of West Cornwall of learning these valuable lessons about bees, at the forthcoming show of the Cottage Gardeners' Society, to be held in August next.

BEES IN AUSTRALIA.

From the 'Bienenzeitung,' 1871, *No.* 9, *p.* 113.

'A most remarkable observation has been made by Australian colonists on bees imported from Europe, not, indeed, gratifying to farmers and bee-keepers in that part of the world, but one in which naturalists must feel a deep interest. It is found that our active European bee remains industrious in Australia for the first year or two after its introduction there, and during this period the colonists collect a large quantity of honey. They increase and multiply, and swarm about among the rich vegetation of the country, while they keep their hives in good order. *After this time they discontinue gathering honey.*'

The above article on bees in Australia has evidently been written by somebody unacquainted with the theory as well as the practice of bee-keeping. We will endeavour, therefore, to explain the matter both to bee-masters and non-bee-keepers.

The bees in Australia do not leave off gathering honey, for if they did they could not increase and multiply. It is the aim of a colony of bees not to accumulate large stores of honey, but to secure the propagation of their species, and on bees mainly depends the fertilisation of flowers. But in order to propagate the species it is necessary for them to collect honey, pollen, and water every day, as long as there is any brood in the hive, and in sufficient quantity to supply the many thousands of unsealed larvæ with food; the consumption being still greater when comb-making is going on at the same time. To provide all these larvæ with the proper quantity of food, a couple of pounds of honey and pollen, at least, will be required every day, and a surplus of honey in the hive is therefore possible only when the consumption for the brood is smaller than the quantity of honey collected, or if the bee-keeper knows how to restrict breeding, so as to make sure of a good honey harvest.

Very large quantities of honey are frequently obtained from colonies of bees in northern countries; the reason being that—in Germany, for example—the queen discontinues laying eggs in August; consequently breeding is gradually reduced, and in September there is no longer any expenditure of food on the brood. All the honey, therefore, which the bees gather from the buckwheat and the heath (*Erica*) is stored up for the winter, whereas in Australia bees no sooner become accustomed to the climate there than they are sure that they will have good pasture in abundance throughout the year, and will therefore not for a moment be without the necessary supply of food, even if they neglect to accumulate any considerable stores. If the Australian colonists were good bee-masters, and kept their bees in hives with moveable combs, on the principle advocated by Dzierzon, they would very soon separate the honey compartment of the hive from the space occupied by the brood, when they would find that, as honey is carried in every day, the combs emptied to-day would be filled again in a very short time. If bee-keeping in Australia is carried on irrationally, it must appear obvious to any bee-keeper who uses hives with moveable combs that the bees in Australia exist solely for the propagation of their own species, but not for the purpose of accumulating honey for the benefit of man. As flowers blossom throughout the year in Australia, the bees ought to be more industrious there than with us in Germany, for wherever there are sweet juices to be obtained the bee is busy from morning till evening, and for this reason the worker bee never dies of old age, but wears itself out with hard work prematurely.—(Signed) Dr. Pollmann, *Bonn, Jan.* 1879.

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded: and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

FLASHING TO PROMOTE SWARMING.—PIPING BEFORE FIRST SWARMS, &c.

I am sure you will consider the following of sufficient interest for your *Journal*.

About ten days since a strong stock swarmed, but the sun going in they returned to the hive. As thousands were hanging out for several days and suffering from the rains for want of room, I nadired them and all went on well. This morning it rained heavily, but being out and propping up one of the legs of this hive I heard the 'calling up' note generally heard at night, and, as I have always been given to understand, *only* before *casts* come off.* Well, a gleam of sunshine came out at twelve o'clock and I flashed it into the hive with a looking-glass; about two dozen bees flying in front of the entrance in great excitement. I had given up doing this and was sitting down about a yard and a half from the entrance, when the two dozen bees went in, and a moment afterwards out came a splendid queen. She flew three or four times round the hive and then went in, reappearing almost immediately, when she took flight and was *followed* by the swarm.

Now, in Frank Cheshire's book he distinctly says,—'for the common idea that the queen issues first and that the bees follow is quite erroneous.'

Of course being so near and their being no bees about to hinder one's sight it was impossible to make any mistake about it.

I wrote to you the other day about wooden hives swarming, but I forgot to mention that of my eleven steeks the two first swarms this season came out of skeps covered with *milk-pans* and *nearly a week before any of the others*, which were covered with straw hackles. They were not favoured by situation in any way and were not as strong in bees, as far as I could tell, as some of the others. Is there any virtue in milk bowls? It looks like it. I have written this in great haste, as I am going from home for a few days, but wished to be in time for your July *Journal*. Is there any real good in the looking-glass dodge? I have only tried it twice, and in both cases the swarms have come out within a short time, ten minutes in the above case, and perhaps in an hour on a previous occasion.—Arthur J. W. Wood, *Ripon*.

[The milk-pans may be preferable through having a virtue which the straw hackles cannot possess, viz., the power of transmitting heat. We have often said, but have not always been believed, that hives ought to receive all possible benefit from winter sunshine; we do not, nor even did mean sunlight. Your 'flashing' experiments prove it to be most exciting, and it may prove to be a help to those who desire 'natural swarms.'—Ed.]

* There is little doubt but that ten days ago when the swarm came out, the queen in attempting to follow it fell to the ground and was lost, and the swarms are now in the character of casts, and the queens, young and wilful, subject to no law. You will probably have a succession of swarms, each headed by a young queen.—Ed.

LOSS OF QUEENS.—BIRDS AS BEE ENEMIES.

I am glad to see, from a reply of yours to a correspondent, that I am not the only person who complains of the extraordinary loss of queens this spring, as I almost began to fear there must be something wrong in my way of management.

Birds (which some people seem to deny) have played most fearful havoc with my bees this year. They are the common house-sparrow; and, though several have been shot and hung up, the birds do not seem at all frightened, but continue to fly in front of the hives, and take off the incoming bees when on the wing. With regard to a letter in your last *Journal* from Mr. Hunt, I may say that my bees, as a rule, have been much more ill-tempered this year than last, more especially in exposed places, where they have been subjected to the driving rain, and so on. This seems, I think, to bear out what Mr. Hunt says.—A. G. R., *Tisbury*.

QUEENLESSNESS—BEES REFUSING TO MAKE QUEEN-CELLS.

As requested in the *Journal*, p. 33, I send you a few observations on the doings of the hive there mentioned:—

May 10. Put in brood-comb, No. 2, from an old Ligurian stock.

May 15. Looked in and found queen-cell partly raised, and with pap in on comb inserted on May 3, called No. 1. No sign of queen-cell on comb, No. 2. Thought they *might* have moved an egg. Black bees carrying pollen.

May 26. Found sealed queen-cell on No. 1, also on No. 2. Black bees carrying pollen.

May 31. Queen-cells both destroyed, but no queen in hive; several more drones than I expected; 5 p.m. had another good look for queen, but finding none inserted small piece of Ligurian eggs.

June 4. No signs of queen-cell on inserted comb; 11 a.m. caged a black queen, and as soon as I put her near the combs the bees rose up on the top of the combs an inch thick, with a hum just like swarming.

June 5. Liberated black queen at 5 p.m.

June 6. All the brood inserted in this hive has been Ligurian up to now; lots of Ligurians fly abroad, but not one carries in pollen at present; pollen is carried in by black bees only.

June 8. A few Ligurians carrying half loads of pollen; blacks, full loads.

June 10. Opened hive and found queen all right, and laying lots of eggs.

June 19. Bees working well, both Ligurians and blacks taking in full loads of pollen. I shall have a good chance now of seeing how long the Ligurians are before their days are ended, and if you think it of interest will let you know.—Henry Yates, *Grantham, June* 19.

[These 'observations' fully bear out our oft-expressed

opinion that old bees cannot raise queens, or feed brood properly, being incapable of preparing the necessary pap for either case. The young Ligurian bees introduced in comb No. 1. May 3, had hatched out in numbers by May 10th, when a second comb of Ligurian brood was inserted, and then queen-cells were raised, one being found on the 15th partly raised, with pap in it; and on the 26th a second sealed cell was discovered on No. 1, curiously proving that bees do remove eggs, for no egg or larvæ could have remained dormant on that comb from May 3rd to 26th, even though it were a drone-egg or larva (after partaking of royal pap); and the fact of the cell being destroyed proves that there was a living bee in it at the time. On 31st May, both queen-cells were destroyed, proving that one had hatched out a queen which had destroyed the other. It is not in the slightest against our theory, that our correspondent, who deserves sincere thanks for his careful observations, was unable to find the young queen, for she may have been lost on a wedding flight in such wretched weather as prevailed during June, or being shy, have evaded him, as is their natural propensity. The further experiences regarding the introduction of the black queen, are quite in accord with our own observation. We sincerely hope our friend will give careful dates as to the term of existence of the Ligurians.—Ed.]

SWARM PREVENTION (?).

A hive was supered on June 4th, after the first swarm had left on the same day. On June 10th perforated zinc was placed between super and hive, after almost clearing super of bees. On June 13th the first cast came off, which was united to first swarm from same hive. This was done during the afternoon, but I saw no queen though I watched carefully for her. On June 16th second cast came off, which was returned during afternoon, but again saw no queen. On June 18th third cast came off, which was returned, but saw no queen. Whilst looking into super, saw queen in super. Took her out and put her into hive.

Query. How did queen get into super? Through perforated hive? or was she imprisoned in super when I placed perforated zinc on hive? If so would casts have returned?

N.B.—The casts showed no restlessness, although they had lost queen.

If you accept the last alternative, does not it show that, however much you may imprison the queen, you do not prevent swarming, though possibly the swarm will return again and again to the hive, and, therefore, that the attempt is only waste of time? My belief is that it is a false principle in bee-keeping to attempt to hinder swarming, and thus the true principle is to get your swarms as early as you can, and double if you please, in hives with foundation or every other frame comb, and super as soon as complete. Reducing your stock in autumn to half those you wish to have for harvesting purposes.

Has any successful bee-keeper ever united swarms to stocks that have already swarmed, and had good super results? So many of us want to keep down our stocks to a reasonable number—which cannot be done by preventing swarming,—but which might be done by thus reinforcing hives that are reduced by swarming.—S. N., *Cowbridge*.

BEGINNING BEE-KEEPING.—THE FOLLY OF PURCHASING STOCKS.

Permit me to inform you that I bought a stock of Ligurian bees, in April, from a gentleman at Newton Heath, near Manchester. I paid 4*l.* 6*s.* for bees and comb, and 19*s.* for hive, which is 5*l.* 5*s.* When I saw them on purchasing I thought there were not many bees. However, I got them home all right (nine miles), and, on looking through the glass window at back, I found only three combs, or spaces, with bees, only about half way down. The other combs had not a single bee on them. I fed them from the first with syrup, with a four-hole feeder. They took but little, about 4 ozs. a-week. I put fresh syrup on with muslin and perforated zinc; but they only took it at about the same rate. I wrote to the seller, to inform him how things were, and his answer was, 'Bees have not been stimulated as they ought to have been.' I wrote again, forwarding a sample of muslin and zinc which was over the feed-hole. His answer was, 'Muslin all right, but zinc was rather too thick.' Whenever I raised the bottle I found syrup on the zinc, and it appeared to me that the bees had plenty of syrup. The syrup was made of loaf-sugar, with half of its weight of water, 10 lbs. sugar, 5 lbs. water, and boiled ten minutes. Since I got May *Journal* it has reminded me of a thing I shall not forget very soon, and that is, 'There are *sharks* on land;' for, I think, I never got the worth of my money. I enclose a piece of muslin, such as I used, and have taken the zinc away sometime; but they consume no more. The bees are still becoming less, and there does not appear more than a handful. Hoping I have made myself plain, and, if you can give me the cause of them reducing, I shall feel obliged, and what is the best thing to do.—James Page, *Jericho, Bury, Lancashire*.

[There is little doubt but that the bees are queenless, and are dwindling through there being no young ones hatching to keep up their numbers. It is a pity the warning given in the *Journal* did not reach you in time. It would have been far better to have purchased a swarm, as we have so often recommended. There is now no remedy. You saw them before you purchased them, and you 'got them home all right.' It was evidently a *bona fide* purchase on your part, and you have evidently no claim. What to do with the bees is another question; but, as there is only a handful, it would be as well to destroy them, or unite them, if possible, to another stock, and put a new swarm into the combs they occupy, if the said combs have no sign of foul brood, which may, after all, be the cause of the dwindling. The muslin is all right.—Ed.]

AN IRISH BEE-KEEPERS' ASSOCIATION.

I beg to enclose P. O. O. for 5*s.*, being amount of my subscription towards the above. I think it much better to secure funds at first—talking and writing afterwards. I am greatly pleased at 'J. S.'s' remarks on Bee Societies in general, and his muchly-admired sentiments of the British Association forming a Grand Union for the United Kingdom of Great Britain and Ireland. The parent Association should hold three great Annual Exhibitions each August—one in London, one in

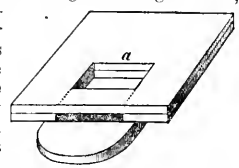
Dublin, and one in Edinburgh or Glasgow. The branches could be held in conjunction with the local flower shows and other displays. As all our Irish affairs are managed in London, you would do well to have our head-quarters there, for some time at least. We have a great many serious drawbacks to deal with. No Baroness Burdett-Coutts to head our list. I notice in all your accounts of English and Scotch Associations the patronage is under the Earl of So-and-so, Sir Charles So-and-so, &c. But perhaps some kind friend may come forward and aid us in the present movement. We can't exactly get on well until after we have an Exhibition in Dublin, presided over by yourself and Rev. H. R. Peel, with Bee Tent and manipulations. All the bee-keepers of Ireland could then have an opportunity of disposing annually of their surplus stocks of bees and honey. They could there meet their hive-makers and purchase their stocks of bee-furniture, &c. The farmers and other classes have their societies empowered by royal charter, and I don't see why we can't be protected, and enabled, by a grant from Government, to carry out our peaceful and loyal intentions, and thus promote a source of industry and create more social comforts for our rural peasantry by encouraging them to engage in bee-keeping, and save the waste of sweets wafted on the 'desert air.' When the Society is firmly established, each member ought to be called on (in addition to his annual subscription) to subscribe to the expense of sending a delegate to the monster honey shows, such delegate to give an account of his stewardship in the columns of our *Journal*.—J. Traynor, *Tinahely*.

HIVE ENTRANCES—A CAUTION.

On paying my morning visit to my hives, about 10.30 a.m., I observed no bees either coming out of or going into my strongest stock, on looking to the entrance I saw it choked with dead bees, and on further examination I found at least three fourths of the bees either dead or dying. I then proceeded to take out the frames one by one; they were covered with live bees, although in a very sleepy condition; there was brood hatching, and in various stages, some only just filled up, some half so, some eating their way out. The hive contains eight Woodbury-shaped frames, four of these are filled with worker brood, and one half filled with drone brood, most of which were eating their way out; there was not a trace of honey or pollen, the queen appeared all right, although in a semi-comatose state from the effects of the suffocation. The hive has a quilt. It was a first swarm last season, with a one-year-old queen, so this would be the beginning of her third year. It was the strongest hive I have, or rather had; and I expected it to swarm daily, as drones have been flying from it for a week past (May 30th); however, I found no queen-cells in the hive. I may add that I have not fed this hive during the winter, as they were well supplied. The hive has three windows in it, so that I have been able to see that the bees have not been in want. I have now put on a bottle in the hope of resuscitating them; and I hope, as there is so much brood hatching out, that all will yet be well. If you think this communication will interest other bee-keepers, make whatever use of it you like; and if you can suggest the cause, and the means of avoiding a repetition of such a disaster, in the next *Journal*, I shall feel greatly obliged.—Wm. Walker, Jun., *Wellcombe, near Devon, May* 30, 1879.

We endeavoured to account for this accident—for such we felt sure it must have been—by suggesting that there was something wrong with the entrance; either that it was too small and that a crush of bees had choked it, or that the entrance-way, instead of being cut out of the bottom of the hive, was sunk in the floor-board, leaving, as is usual in such cases, an inclined plane for the bees to ascend, and that *perhaps* the hive had been slid back so as not to permit the passage of bees. Our correspondent, however, explained that the entrance was a tunnelled one, and that the hive was in its proper place. June 6th, he says:—

The entrance was not grooved in the floor-board in the way you mean. The floor-board is constructed of two pieces, the grain being crossed, with entrance half-inch high in the lower piece, and hole 4 inches by 2 inches in the upper*—thus. I have no doubt you know the sort well enough. The hive was in its proper position, too. I cannot think what caused the death of the bees.—Wm. Walker, Jun.



THE SEASON IN HERTFORDSHIRE.—CHEAP HIVES.

What a backward season this is! I have, for the first time since I began bee-keeping, passed into June without having had a swarm. The hives are daily getting stronger, but perhaps another fortnight must elapse before any are powerful enough to be divided. However, the flowers are as backward as the bees, and by the time the honey harvest comes the labourers will be numerous enough to gather it. The late frosts—

* Here, then, is at once the solution of the mystery, and the only wonder in the matter is that there have not been many more disasters of the same kind. A few bees falling from the cluster, which in spring is almost invariably in front of the hive's centre, and consequently just over the hole in the floor-board indicated at *a* in the woodcut, would fill it, or so nearly so as to cause the bees great difficulty in their endeavours to pass and repass, and presently a panic would seize them and suffocation would do its worst. We have seen most miserable effects produced by floor-boards of the kind, whole colonies having been destroyed utterly. In the present case, the quilt being gently ventilating saved the remnant, who, as is usual in such cases of excitement, go on with their breeding at a great rate. There is no entrance so good as that which is cut in the hive on a level with the top of the floor-board, so that by passing a wire hook within, the whole floor-board may be searched, and dead bees cleared out immediately without disturbing the hive.—Ed.

notably those of the nights of 7th and 8th May—were most injurious to the clover crops. A farmer told me that he entered a field of white clover on the 8th of May, when the sun was shining, and the air was full of the smell of burnt hay. The frost, succeeded by hot sun, had scorched the young crop, and materially damaged it. I look for my honey harvest during the last week of June and first two weeks of July. This year I certainly cannot count on it before late in July; and as I hope to leave home then, I fear my surplus honey will be small this year, as I shall not be able to attend to its storage properly.

I still have two of your half-inch stuff, ten-framed hives, which have stood the winter well, having had only an additional covering in the shape of a jacket made of wine-bottle straw-envelopes. Wishing the *Journal* and its Editor continued support and success, &c.—P. H. PHILLIPS, *Offley Lodge, near Hitchin, June* 4.

BEE-KEEPING IN YORKSHIRE.

We are in a bad way here. Numbers of hives have died, and the weather continues so cold and ungenial that the bees can but rarely get out to work. I have three which appeared ripe for swarming, but within the last few days they have begun to throw out the drones; and unless the temperature rises, and the sun comes out, I expect they will want feeding, which, at this time of the year, is most unusual. This is not profitable bee-keeping. I made twelve new hives (Makeshifts) during the winter, but, according to present appearances, shall not want one.—J. H., *Yorks, June* 7.

QUEEN ENCASEMENT.

From my observations this spring I think the suggestion of your junior, that the queen is squeezed [encased] to death by her attendant bees, in their efforts to create heat for breeding purposes, is very likely to be true. My loss in queens since March has been very considerable indeed, and I think during this late cold weather the bees very probably have hugged the queen rather too much in their endeavours to create heat.—A. G. R., *Tisbury.*

INSECTS IN POLLEN.

I laid by some frames of nice straight comb for use this year, and on looking at them find that the bee-bread which was in them is full of insects like cheese-mites. The combs are quite sweet, and I am loth to throw them away. Can I clean them in any way, or may I give them to the bees as they are? An answer in the *Bee Journal* will oblige—M. E. B., *Liverpool, June* 17*th.*

[The insects found in the pollen are undoubtedly of the same character as those found in cheese, and will do no harm; but it will save the bees much labour if the dust and vermin be thoroughly cleaned out of the comb. Cheese and pollen are highly nitrogenous—perhaps presently cheese will be found to be a substitute for the latter—spraying the comb with diluted (2 to 1) Condy's fluid, would remove all danger, it being a powerful disinfectant and deodoriser.—ED.]

A BEE-KEEPING REPORT.

I have wintered in my garden here five stocks all in bar-frame hives with quilt, I left them all at the commencement of winter strong, and fairly well victualled, after taking from them in all, after an exceptionally bad honey season, not more that fifty pounds. The hives occupy a southern exposure, and have the full benefit of every ray of sunshine throughout the winter. In February I commenced slow, *very* slow, bottle-feeding, which was continued up to the end of May. On June 9th, heavy swarms came naturally off my oldest stock in a Langstroth Hive; and up to the present date, June 17th, four of the five stocks have thrown off swarms, all except one unusually strong, and all five are now full of bees to overflowing. This seems a fair illustration of the advantages of the quilt, of a sunny exposure for hives, and of the benefit of spring feeding. I am the only bar-framist, and the only bee-keeper in this neighbourhood, so far as I have yet learned, who has emerged from last winter without heavy loss, and we think that our winter here has been specially trying.

My bees have been working with really frantic energy in every hour of genial weather, and are now rich in brood and not ill off for honey. No super work as yet; but a 'New Idea' frame in one stock is more than half filled with virgin honey. I write this mainly to express my sense of many obligations to the counsels of the *British Bee Journal.*—A. W. W. D., *Onehouse, Stowmarket, June,* 1879.

WHITE-EYED DRONES.

I enclose you three white-eyed drones, such as I never observed before. Are they usual or rare? How do you account for the *white* eyes? They seem quite blind, and very numerous. I enclose stamped envelope for reply, if you will spare me a little time.—A CORRESPONDENT, *Northumberland, June* 19, 1879.

[We can only suggest that the drone-brood suffered from and remained undeveloped through lowness of temperature in the part of the hive (probably the outer comb) where the young drones were 'growing.' Under the microscope—by-the-by, one of Deacon's, of Sydenham, than which we do not wish for a better—the facets of the eye instead of showing clear, exhibit the appearance of sealed brood in newly-built comb. It is of course needless to report that the eye of a bee is composed of numerous hexagonal facets, each of which is an eye. The appearance of such drones is not common. Perhaps our readers will give their experience.—ED.]

COMB-FOUNDATION.—SKEP *v.* BAR-FRAME.—SWARMS NATURALLY UNITING.

I have some beautiful hives of comb this season, with the aid of the foundation, and am now putting on supers to four or five of them. It is the grandest invention ever made for bees, and a good swarm with its aid can fill ten Woodbury frames in little more than a week. I can recommend it, with the indispensable aid of your smelter, to every one.

I now wish to call your attention to the following: perhaps you or some of your correspondents

may have found the same thing; and that is, that skeps swarm *much* earlier than wooden hives.* I have three wooden hives (the only three I possess), that have been, apparently, as strong as any of my others, not swarmed yet; and skeps all about them swarmed ten days and a fortnight since. Is it that the double walls and the large size hive keep them cooler? It is of great importance, and makes me hesitate whether to keep my stocks in skeps only.

An odd thing happened among my bees yesterday. I hived a moderate-sized swarm in the afternoon, and put them in a skep intending to unite them in the evening to a cast of the previous day. On looking at them in the evening I found the skep, a very large one, full of bees to the very bottom. I got out a fresh Woodbury hive and threw them on my swarming-board, and the board, 4½ feet square, was completely hidden by bees; even the edges were hidden by bees hanging over the board. I never saw such a boiling of bees in my life. I let most go into the new hive, and took the remainder to put to the cast previously mentioned. I suppose some time during the afternoon a swarm, or perhaps two swarms, must have come out and joined themselves to those first hived; but there were men working near the hives until five o'clock, and they must have seen them go in before that time. If you think the above interesting you are at liberty to put it in your *Journal*.—ARTHUR J. WOOD, *Ripon*.

PARIS UNIVERSAL EXHIBITION OF 1878.

In reply to an inquiry as to awards at Paris Exhibition we have received the following reply, which may be interesting to some of our readers: 'Sir,—In reply to your letter of the 19th instant, I beg to inform you that only gold medals and the accompanying diplomas have as yet been distributed from this office (Canada Buildings, Westminster). The silver and bronze medals and the honourable mentions have not yet been received from the French authorities, but you shall be duly informed when they are ready for issue.—(Signed) PHILIP CUNLIFFE-OWEN, Secretary.'

REV. W. C. COTTON.

We regret that we are called upon to announce the death of the Rev. William Charles Cotton, eldest son of the late Mr. W. Cotton, some time Governor of the Bank of England. Mr. Cotton, who died on the 22nd ult., aged sixty-six, was formerly student of Christ Church, Oxford, and Newcastle scholar. He was through life an ardent bee-keeper, and by his writings and personal example did much to popularise the science of apiculture. In 1838 he wrote a *Short and Simple Letter to Cottagers*. In 1842 he produced the well-known work entitled *My Bee-Book*, which not only treated of the best modes of the management of bees in his time in all parts of the world, but which also included several rare tractates of former English apiarists on the economy and practical management of bees. In 1841 Mr. Cotton became domestic chaplain to the late Bishop of New Zealand, Dr. Selwyn, with whom he embarked on board the *Tomatin*, on the 26th of December of that year. On the voyage out, and subsequently, Mr. Cotton rendered the Bishop much assistance in translating the Bible into the native tongue. Mr. Cotton was accompanied by his bees, and many marvellous stories are told of his mastery over his favourites on ship-board. He was very successful in the introduction of the cultivation of bee-keeping in his adopted country; and in 1848 he produced his *Manual for New Zealand Bee-Keepers*, published at Wellington (N. Z.). After his return to England Mr. Cotton was presented, in 1857, to the Vicarage of Frodsham, Cheshire. To the end of his life he retained his love to the fascinating study of his youth. He took a great interest in the establishment of the British Bee-keepers' Association, became one of its Vice-Presidents, and was one of the Judges at its first Show at the Crystal Palace in 1874. Though, in issuing his *Letter to Cottagers*, he designated himself a 'Conservative Bee-keeper,' he was ready, when convinced of the superiority of the 'more excellent way,' to cast on one side the mode of management of his early days, and to advance—foot to foot, and shoulder to shoulder—with the most expert of bee-keepers. The late Mr. Cotton was the elder brother of Lord Justice Cotton.

BEES IN LONDON.—An unusual sight could be witnessed in the Brixton Road, opposite Kennington Church, on Saturday afternoon. A swarm of bees settled in a laburnum tree, to which the owner soon followed them; but the difficulty arose, how to get them down. They were about fourteen or fifteen feet from the ground, the tree being too slender to support a ladder. Happy thought! Take a cab A Hansom was called; the bee-master (Dr. Pine) mounted on the top of it, hive in hand, and in a few seconds had secured his bees. I only hope, for the sake of the next passenger, that none of the bees took a seat inside.—*'Pick up Notes,' South London Press.*

Echoes from the Hives.

Notts, May 27th.—'Bees are not behind the vegetation here, everything being late. Sycamores are out, but not apples, and (weather permitting) some hives are ready for supering.'

Struan, Perthshire, May 29th.—'I am sorry to say we are quite six weeks behindhand here with bees.'

Maidstone, June 16.—'My bees are very backward. My first swarm came out on June 4th. I hived one the day previously for a lady in this neighbourhood, and I have only heard of one person having had swarms in May.'—J. T.

Salcombe, June 18.—Getting Bees into Supers.—Casting out Drones.—Bees dying.—'Thanks for your suggestions as to hot water or hot bricks. I have tried the latter for supers. Get them hot in an oven, and place them on top of the super in the evening, and after one or two applications the supers became full of bees; but the weather is so unkind that they have done nothing in them, and several stocks are ripping their drone brood, and driving the drones out as if in the month of August. Would that not be a token of non-swarming?—[Yes, for the present.—ED.]—The weather is still very unsettled, and

* There may be several reasons why the skeps in this particular instance swarmed early, but we question if that is an item which can fairly be set against bar-frame hives and their advantages. That the latter as generally used are cooler than skeps or simple boxes, we readily admit, but, as will be seen in our article on Supering, p. 46, the remedy is in the hands of the bee-keeper. The 'beautiful hives of comb,' filled in a week by the aid of comb-foundation, the 'grandest invention ever made for bees,' so highly recommended by our valued correspondent, is sufficient guarantee that he will not *go back* to the old system (?) where foundation is comparatively valueless, and the hive not invadable for any useful purpose.—ED.

I fear it will be a bad season for super honey. A subscriber complains of his bees coming out by hundreds and dying in front of the hives. I had a stock last year that did the same. To some of them I gave syrup when out, and if not too weak they would take it, and it would strengthen them, and they would return, but the greater part would not touch it; they survived but did not swarm, and were in a good condition at the end of the season.'—W. C.

Bucks, June 21.—'I have had splendid swarms, more than I know what to do with. The casts we have generally put back after cutting out the queen-cells. I have no doubt now about the superiority of Ligurians, and of quilts for winter, as I have never had my bees so healthy and strong. What kind of a show will it be at Kilburn? I hope to come one day. There is a pig-headed individual here who keeps (?) bees in his own style in *old* straw skeps. He has one *immense* super over a skep as big as a sea-kale pot, which the bees are expected to fill. My Ligurians, however, have visited and turned out the bees from the hives.'—S. R. W.

Single v. *Double-walled Hives.—Badminton.*—'My stocks are all healthy and have wintered well. Those in single-walled hives are as strong as those in double-walled, but the weather is anything but genial, and vegetation is very backward. I fancy there will not be many early swarms.'

Bees in Sussex.—'The bees are not doing much else but swarm, nor since the 3rd June in these parts. The best of the honey season has passed without much being collected, and I think, unless some are in more favoured localities, there will be little honey to show. We have had abundance of bloom, but the weather has been so bad that the bees have not been tempted out.'—T. W. C.

Queries and Replies.

Query No. 319.—*Killing Drones and casting out Brood.*—I should be glad if you would give me an answer to one question through the medium of your *Journal*. I have seven pretty strong stocks, and have been working well whenever they had a chance, but had not swarmed up to last Sunday, and on that day I noticed two hives—one was your No. 1 Bar-frame, the other a box of fixed comb—killing drones by the hundreds, and busy as ever they could be bringing out young white ones, and are still doing the same to-day. I examined the bar-frame about a month ago, and found it to be a very strong stock; it did not swarm last year. It seemed to me rather early for that little game. I may say my gardener, who lives about a mile away, has two or three stocks, and one of his was doing the same thing.—J. B.

Reply to Query No. 319.—The meaning of the 'little game' is, that the bees are not getting a living, and are stopping the production of new mouths, and destroying the now useless ones, for doubtless they have for the present given up all idea of swarming, and therefore did not want the drones. It appears to be most difficult to make bee-keepers understand that it is the *incoming* of honey, &c., that governs the economy of the hive during the period of activity. Their store at home, though it may satisfy the bee-keeper, does not stimulate the bees, and a cessation in the honey yield, or anything that prevents the inflow of honey to the hive, is sure to stop their breeding, and cause injury and loss to the colony. The remedy in such case is food, gently, but continuously, administered.—Ed.

Query No. 320.—1. Will you kindly give me further particulars about the right time I should use the queen excluder and *includer* in your Combination Hive, to prevent swarming, and for how long? 2. Is it well after a swarm has issued to destroy the remaining queen-cells to prevent further swarming, or is it waste labour to do so where the bees are determined to swarm? 3. What guide is there for the right time for putting on the supers?—K. C. J.

Reply to Query No. 320.—1. It is most fallacious to give dates on any question in bee-keeping, because the weather is the governing consideration. The excluder zinc need not be applied unless swarming appears imminent, and then it will have done good service if it prevents for the time being. There is no law as to swarming or supering which can be conveyed in specific terms; every one must judge for him or herself from the appearances which the hive presents. 2. It is well to destroy the 'remaining' queen-cells, less one; if *all* be destroyed, the bees will raise a fresh batch, and then a multiplicity of after-swarms may come forth; and again, if all queen-cells are destroyed the bees would scarcely *determine* to swarm, as they would have no leader until they had raised one, or more, as above suggested. 3. Kindly refer to page 24 of *Journal* for June, and to article in this Number, page 46, on Supering.

NOTICES TO CORRESPONDENTS & INQUIRERS.

W. T., *Inverurie.*—Your bees are starving, feed at once; the slaying of drones, and the turning out of white bees, are unmistakable signs.

Transferring.—The engravings below may help you to distinguish the queen. She has a long slender body

QUEEN. WORKER. DRONE.

and short wings, nevertheless a drone is often mistaken for a queen, though his squareness ought at once to betray his masculine character as compared with the elegance of the only perfect female in the hive.

One in Arrears.—Pray do not waste time and stamps by writing, nor cause us to do so. Halfpenny stamps are very serviceable, and will be gladly received. Receipt stamps we are delighted both to receive and use, the latter most ungrudgingly.

Bee Farm, *Kettering.*—1. Bees are scarcely likely to sting people passing fifteen yards from their hives, but accidents will happen, and a laden bee returning to its hive might alight upon a foot-passenger, and, being subjected to rough usage would sting, but as a rule bees never interfere with those who do not disturb *them*. 2. Bees do not need to be far from the dwelling-house, the nearer they are, the more civilised they become, and less likely to sting those who pass near them. 3. Slinging should, as a rule, be done inside a room or close shed, to which the bees have not access—the combs should be taken out one at a time, and the bees shaken off into the hive, those that follow should be brushed off as the comb is being carried away. If not too busy it is well to extract the honey from the unsealed cells before slicing off the caps from those sealed, so that the comb may be relieved of the weight. Unsealed honey flies out very quickly. 4. We prefer Abbott's Little Wonder to all other slingers: it is very cheap, weighs only a few pounds, can be readily used with one comb (a great advantage), and there is little or no circulation of air to damage the brood while rotating, and further it is compact and portable.

SURREY BEE-KEEPERS' ASSOCIATION

INSTITUTED 1879.

Under the Patronage of the EARL and COUNTESS of ONSLOW.

President ... ... J. STEWART HODGSON, Esq.

THE ASSOCIATION will hold the FIRST EXHIBITION of BEES and their PRODUCE, HIVES, &c., at Clandon Park, Guildford, on the 17th of July, 1879.

SCHEDULE OF PRIZES.

Class. HIVES.

All Hives to be fitted with Guide Combs.

1.—For a cheap well-made Bar-frame Hive, for Cottager's use, either in straw or wood, on the moveable comb principle, which shall commend itself to the Judges as a serviceable substitute for the common Straw Skep.
British Bee-keepers' Association's Bronze Medal. 7/6 5/0

N.B.—The Association is not at present prepared to offer Prizes to Hive Makers for Exhibits, except as above.

HONEY.

2.—For the best Harvest of this Season's Honey in Comb, in Sectional Supers, each Section not to exceed 3 lbs. in weight, the total weight of each entry not to be less than 12 lbs.
British Bee-keepers' Association's Silver Medal. 10/0 7/6

COTTAGERS' CLASSES.

For *bona fide* Cottagers, being Members, no entrance fee.

Cottagers not being Members to pay an entrance fee of 6*d.*, to include all Exhibits in the Classes.

3.—For the largest and best Harvest of Honey in the Comb, in any form, the produce of the Exhibitor's own Bees, gathered naturally this Season.
A Hive of Bees. 10/0 7/6

COTTAGERS' CLASSES—*continued.*

Class.

4.—For the best Exhibition of Run or Extracted Honey, naturally produced, of not less than 1 lb. in weight.
A Bar-frame Hive. 7/6 5/0

5.—For the best Stock of Bees, provided that one Stock only be exhibited, by not less than three Exhibitors.
A Bar-frame Hive, with a Set of Sectional Supers complete.

The Winner of this Prize may have his Bees transferred to his Hive by the Manipulator, without charge, if he wishes.

6.—DRIVING COMPETITION.—A Prize of 5*s.* will be given to the Cottager, who shall best and cleanest Drive out the Bees from one Straw Skep to another, either by close or open driving. The Bees may be smoked if the driver prefers. They may also be returned to their own hive again if he wishes. All Competitors in this Class to bring their own Bees.

For further particulars, Rules, Mode of Entry, &c., apply to EDMUND WHEALLER, Esq.,
The Waldrons,
Croydon, Surrey.

BRITISH BEE-KEEPERS' ASSOCIATION,

INSTITUTED 1874.

PRESIDENT ... ... THE BARONESS BURDETT-COUTTS.

THE ASSOCIATION will hold their FIFTH GREAT EXHIBITION of BEES and their PRODUCE, HIVES, and BEE FURNITURE, and HONEY FAIR, at the Royal Horticultural Society's Gardens, South Kensington, in connexion with the Society's FLOWER SHOW, on Tuesday, Wednesday, and Thursday, July 22, 23, and 24, 1879.

Exhibitors must remit an Entrance Fee of One Shilling for each Entry made, and forward their Entry Forms properly filled up, in time to reach the Rev. H. R. PEEL, Abbot's Hill, Hemel Hempstead, Herts, on or before Monday, July 14th. Entries will not be received unless they are made on the proper form of Certificates, and accompanied with the requisite fees. *Foreign and Colonial Exhibitors will not be required to pay any Entry Fees.*

The Corrected Schedule of Prizes may be had on application to the Hon. Sec., Rev. H. R. PEEL, Abbot's Hill, Hemel Hempstead.

COMB FOUNDATION.

Of pure Home Wax.

ROOT'S MACHINES.—To meet the wishes of many inquirers, I have imported a DRONE CELL MACHINE, which produces Sheets of extreme thinness, and can now supply both WORKER and DRONE CELL FOUNDATION at reduced rates.

Dove-tailed SECTION BOXES, in lots of 100. 1 lb., 4¼ by 4¼, 5*s.* 6*d.*; 2 lbs., 5 by 7, at 7*s.* These Boxes are planed on one side, and on both edges, to ensure accuracy.

For Samples of all the above, send Three Stamps to JOHN T. KINNEAR, West Newport on Tay. fo. 28

COMB FOUNDATION.

WILLIAM RAITT offers Finest Impressed Sheets, for next Season, at Reduced Prices. Sheets, 9 ins. deep, for Brood Combs; 5 ins. deep, very thin make, for Supers. Safe arrival guaranteed.

See opinions of the Rev. G. A. Procter, and J. S., in B. B. J. for November and December.

Send stamp for Sample and Price List.

ABBOTT'S ZINC EXCLUDER at his own prices.

Address—Beecroft, Blairgowrie, N.B. fo. 16

HERTFORDSHIRE BEE-KEEPERS' ASSOCIATION,

INSTITUTED 1878.

President ... ... THE EARL OF VERULAM.

THE ASSOCIATION will hold TWO GREAT EXHIBITIONS of HONEY, BEES, HIVES, &c., and PRACTICAL APIARIAN MANIPULATIONS, during 1879. The first to take place at Hertford, in connexion with the LABOURERS' FRIEND SOCIETY'S EXHIBITION, on Thursday, 17th July. The second at Hemel Hempstead, on Wednesday and Thursday, October 1st and 2nd, in connexion with the HEMEL HEMPSTEAD POULTRY SHOW. The same List of Prizes will be awarded at both Shows.

Classes 1 to 8 open to all England. Classes 9, 10, 11, 12, 13, and the Honey Fair, open to Members of the Hertfordshire Association, and other residents in the County of Herts.

SCHEDULE OF PRIZES.

Class. BEES.

1.—For the best Stock of Ligurian or any other Foreign Bees. 20/0 10/0 5/0

2.—For the best Stock of English Bees. 20/0 10/0 5/0

The Bees to be exhibited living with their Queen in Observatory Hives.

HIVES, &c.

3.—For the best and most complete Hive on the moveable comb principle, to include covering, stand, floor-board, and facilities for storing surplus honey. 20/0 10/0 5/0

4.—For the best complete Hive on the moveable comb principle for Cottager's use, to include cover, floor-board, and facilities for storing surplus honey. Price not to exceed 10/0. 20/0 10/0 5/0

5.—For the best Straw Hive on the moveable comb principle. 15/0 7/6 5/0

6.—For the best and neatest Supers for producing honey in the comb in the most attractive and saleable form. 7/6 5/0 2/6

7.—For the best Honey Extractor, calculated to meet the wants of Cottagers. 20/0 10/0 5/0

8.—For the best and most complete Collection of Hives and Bee Furniture; no two articles to be alike. 20/0 10/0 5/0

All Hives, etc., in the above Classes, to be made or Designed by the Exhibitor.

HONEY.

All Honey to be Judged according to Quality and Purity, being the produce of 1879, and gathered by the Exhibitor's own Bees in the Natural way.

9.—For the best Exhibition of Honey in Supers, or Sections of Supers, separable, and each not more than 2 lbs. in weight; the total weight of each entry to be not less than 10 lbs. 10/0 7/6 5/0 2/6

10.—For the best Single Section in the Comb, weighing not more than 3 lbs. 7/6 5/0 2/6

11.—For the best Exhibition of Pure Extracted Honey in Glass Jars, not to exceed 2 lbs. each; each entry to consist of not less than eight jars. 10/0 7/6 5/0 2/6

A Bar-frame Hive, value 1*l.*, will be given as a Special Prize for the best Exhibit made by a *bona fide* Cottager in Classes 9, 10, and 11; the Exhibitor being a Member of the Hertfordshire Association.

Class. HONEY—*continued.*

12.—For the best Exhibition of Honey in the Comb, taken from one Hive without destroying the Bees. Open to all *bona fide* Cottagers residing in Hertfordshire. (No entrance fee). 7/6 5/0 2/6

DRIVING COMPETITION.

13.—For the Competitor who shall in the neatest, quickest, and most complete manner, drive ont the Bees from a Straw Skep, capture and exhibit the Queen. Each Competitor to provide his own Bees. 20/0 10/0 5/0

The system of Open Driving shall be adopted, the Receiving Hive to be inclined at such an angle as shall permit the passage of the Bees to be seen by the Spectators. Veils and gloves may be worn by the Competitors. Members of the 'Herts Bee-keepers' Association' will be admitted to the Bee Tent to witness the Driving Competition, on production of their Member's Ticket. An Admission Fee of 6*d.* each for the two first displays, and of 3*d.* each to all subsequent displays, will be charged to Non-Members. These Competitions will commence at Hertford and Hemel Hempstead at 2 o'clock in the afternoon.

HONEY FAIR.

A distinct Counter will be appropriated at both Shows for the Sale of Honey in the Comb and in Glass Jars, and in this department Sales will be permitted, and Goods delivered at all times during the Show. Invoices must be sent with each consignment of Goods, stating the prices and weights of the various Supers, Glasses, &c.

The Association will provide Salesmen, but will not undertake to break bulk, nor allow it to be done.

The British Bee-keepers' Association offer a Silver Medal, Bronze Medal, and Certificate, to the three Exhibitors (being Members of the Hertfordshire Association), to whom shall have been awarded the three largest amounts of Prize Money in Classes 9, 10, and 11, at the Two Shows combined, viz., at Hertford and Hemel Hempstead; these Prizes to be awarded at the latter Show.

For further particulars, Rules, Mode of Entry, &c., apply to the Rev. H. R. PEEL,

Abbot's Hill, Hemel Hempstead.

COMB FOUNDATION.

R. M. GREIG having imported a 9-inch COMB FOUNDATION MACHINE from America, is now prepared to supply the Finest IMPRESSED SHEETS, manufactured from selected Wax.

Send Stamp for Sample and Price List.

Address—Parkhill, Aberdeen, N.B. fo. 27

ENGLISH BAR-FRAME HIVES, Woodbury size, 10 bars, 8*s.* each.

ITALIAN BAR-FRAME HIVES, 10 bars, two for 8*s.*

'Commended for simplicity and cheapness.'—*Alexandra Palace*, 1877.

Directions for Management, 3*d.* each. Post-office Orders payable at Horncastle.

ISAAC HALE, Maker, Lincoln Road, Horncastle. fo. 3.

S. F. Clutten,
Whittingham Hall,
Fressingfield.

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 76. Vol. VII.] AUGUST, 1879. [Published Monthly.]

Editorial, Notices, &c.

AUGUST.

August, the harvest month, is upon us, when the merry ring of scythe and sickle should make music in our fields, and the husbandman be mirthful over the crops he is garnering.

'When the bright *Virgin* gives the beauteous days,
And *Libra* weighs in equal Scales the Year,
From Heaven's high Cope the fieree Effulgence shook,
Of parting *summer*, a serener Blue,
With golden light irradiate wide invests,
The happy World, ...
. . . . while broad and brown below,
Unbounded Harvests hang the heavy Head,
Rich, silent, deep they stand, for not a Gale
Rolls its light Billows o'er the bending Plain,
A calm of Plenty!'

So sang the poet Thomson nearly a century and a half ago; but it is certain that as regards this year, his *Seasons* are by no means prophetic, however truthful—subject of course to poetical license—they may have been in his day. Sad, indeed, is the retrospect—a vista tinged with the pleasure of hope; but sadder the prospect, for except by some marvellous interposition of Providence, it is scarcely possible, with shortening days, for the earth to bring forth her increase, and for the crops to ripen and be of service to man.

In apicultural matters the look-out is not encouraging. Excepting in isolated places the weather has prevented the bees making excursions in search of honey, and as a consequence the majority are in a state of semi-starvation: that they are willing to work was amply proved at the British Bee-keepers' Association Show at South Kensington, just past, where, although 'driven' daily, and exhibited in ways which greatly hindered their well-doing for the time being, they gathered during a few hours of favourable weather large quantities of honey from the abundant blossoms of the lime-trees which appear in profusion in the Royal Horticultural Society's Gardens at that place. There is cause to fear that 1879 will be in a general sense a honeyless year. Those who are near to heather and ivy may possibly get their stocks in good wintering condition, and perhaps a little surplus, but the majority will be obliged to unite and feed their bees if they would have them alive another year.

It is peculiarly unfortunate that during a year when the science of bee-culture has made such headway that there should be so little practical result from all the labour bestowed on the bees. By persistence in the promotion of 'our hobby,' as bee-keeping has often been called, we have gained, doubtless through the tact and energy of our earnest Hon. Sec., admission to the *rôle* of the Royal Agricultural Society at Kilburn, and have received direct and encouraging notice from the Royalty of England; and could we but show a good honey result from the bees themselves, there is little doubt that scientific bee-keeping would continue in the ascendant. Humans cannot, however, control the weather, and 'the rain it raineth every day;' and the result, not only to apiculture but to agriculture and horticulture also, is simply disastrous. In many cases where bee and honey shows were to have been held in connexion with flower and fruit shows (notably at South Kensington by the Royal Horticultural Society), the latter were abandoned, and the bee and honey shows have had to stand alone as the sources of attraction, and we are glad and proud to remember the pleasing sensation they created.

It must not be inferred that because in this year of mud and slush bee-keeping has not been as profitable as of yore, that it is not a paying industry—as well might farming and market-gardening be deeried because there has been no sunshine to fill the corn in the ear, ripen the fruits, and develope the beauty of our flowering and foliage plants. Great Britain as a nation is under a cloud, and we poor beings, while striving to do our duty, and make the best of everything, must bow with submission to the Omnipotent Power whose good pleasure it is so to visit us.

USEFUL HINTS.

Extracting.—After such a very bad season as the past early summer-time has proved, it is worth considering if it will not be worth while to use the extractor only, and take all the honey possible, without giving the bees the additional labour of comb-building in supers.

Supering.—At best there can scarcely be more than a week or two of honey-gathering, except on the heather, even though the weather prove favourable; and it will be well not to give too much super space, but, by limitation and careful wrapping, to economise the heat and try to secure perfectly-sealed combs of honey in preference to large supers imperfectly filled.

Queenlessness.—This year has been the worst for queen fertilisation it has ever been our lot to experience; all hives that have swarmed should, therefore, be examined to ascertain the safety and fertility of the young queen or otherwise, and all after-swarms should be similarly treated with the same object. If queenless, or the queens be unfertile, the bees, if not very numerous, would be better united to another stock than re-queened, as it is too risky with old bees, and the raising of a new queen by them from newly-given brood would make them too late for usefulness, even should she become fertile. Giving a ripe queen-cell might be of use, provided the drones be not all slaughtered by the time her young majesty comes forth. We should prefer to unite them.

Robbing—Should be prevented as much as possible by avoiding the temptation to it. Avoid, as far as possible, spilling syrup about hives, keep entrances regulated, and do not, as a rule, open hives until the evening, when, if robbing be commenced, the darkness will speedily stop it. Should a free fight occur, a tube of perforated zinc, through the perforations of which bees cannot pass, may be inserted firmly into the hive-entrance after Mr. W. T. Braddy's method of forming a bee-trap, and we have little doubt but that it will at once put an end to the plundering, for the attracting odour will still be at the hive-entrance, and the robbers will congregate there, while the defenders will be well ventilated, unassailable, and with means of free egress. The tube should be from 6 to 9 inches long, and, say, of a full half-inch 'bore.'

Wasps.—Pour turpentine into their holes in broad daylight, and dig them out forthwith. The turps will slay the sentinels, the dangerous wretches, and the returning wasps are not aggressive, being, as a rule, too heavily laden already.

Young Bees for Wintering.—Let the honey harvest end when it will, if it ever begin, the importance of young bees for safe wintering cannot be over-rated. When we first started the idea, that great bee-master, Mr. Pettigrew, ridiculed both us and it; now, we are glad to find, he is recommending what he formerly condemned, and urging stimulative feeding for breeding purposes.

Bad Look-out.—A man is a '*phool*' who grumbles at what he cannot help, and an '*ass*' if he grumbles at what he might have avoided. There's a good deal of philosophy in those few words; lay them to heart. If stocks are weak through their owner's folly, he has no right to complain; if so, through no fault of his own, let him shoulder the fact and 'present arms' to the ruling Power, at the same time taking every precaution to prevent bad becoming worse as far as in him lies. 'It's no use crying over spilt milk.'

Latest Note.—Summer weather commenced July 28th—three months late. Could scarcely believe it, but actually saw the sunshine.—Ed.

THE KILBURN AND KENSINGTON SHOWS.

From arrangements made, as will be seen on other pages, the Judges will, ere this, have made official reports on the above Shows, and we trust they will give satisfaction to the various exhibitors, and the public generally. We have no hand in their preparation, and up to the present (July 28th) have no idea of their nature, not having seen a line or word, though we hear that they have been partly deposited at our printer's; and we faithfully assure all whom it may concern that such reports shall be—(are now)—published verbatim. This is a new feature in Bee Shows, and one the development of which we await with much interest. It has been a rule in other than bee-courts, that, having given a verdict, one is not bound to give one's reasons for it; but we hope, in future, that the latter—and, we trust, the better—system will prevail in bee-matters, and that reasons will be given for awards which will satisfy the public at large and prevent what sometimes almost borders upon the absurd, so strange and varied are the judgments that are occasionally given. We do not therefore propose to touch upon the merits or demerits of any hive or implement for the present; but we beg of those who wish to give publicity to their inventions to favour us with their own descriptions of them at the earliest possible moment, for insertion in future *Journals*. While, however, refraining from comment on the hives and implements exhibited, we cannot forbear some slight notice of other matters which attracted our attention, not one of the least of which was—Mud; and we could scarcely refrain from wondering why such a

noble Association as the Royal Agricultural Society of England could allow its splendid efforts the possibility of failure and loss, not only to themselves but to the exhibitors and the public at large, bordering on a national calamity, when by wise forethought they might absolutely prevent it, and make their visit to a county a permanent blessing that would be highly bid for. Why should not this wealthy body, comprising the noble and great of our land, acquire powers, if they have them not, 'for taking land otherwise than by agreement;' and having obtained their site, make roads through it, and, if necessary, kerb and pave the paths and crossings, so that, after the Show, it might be let or sold for building land, and the great outlay, such as must of necessity have been wasted on the Kilburn scheme, more than saved? Go where they will they must spend enormous sums of money—why should not they be spent in permanent improvements? We feel sure that Corporations would join them in the enterprise, and probably relieve them of the estates afterwards. The Crystal Palace was the thought of a horticulturist—here is that of an apiculturist offered 'for what it is worth,' in the interests of agriculturists and the public generally. Longfellow writes:—

'How beautiful is the rain!
After the dust and heat,
In the broad and fiery street,
In the narrow lane,
How beautiful is the rain!'

But had he been at Kilburn he would have sung a different song, and imagination would have filled his mind with ideas of asphalte pavement, gravel roads, good drains, and plenty of open gullies, as the kindest means of preventing the 'beautiful rain' being churned up with the clay, making a composition which caused the death of many horses and men, and took all the poetry out of the business.

Another feature at the Kilburn Show was the American Honey, about two tons of which were exhibited by Messrs. Thurber & Co., of New York, whose polite agent (Mr. Hoge) gave us every possible information. Some of the samples were very fine, and all looked beautiful; though we must not forget that taste governs the idea of value in honey, and that few think alike on such matters. But the greatest feature of all was the visit on one day of their Royal Highnesses the Prince and Princess of Wales, their three children, and suite, and the deep interest they took in the various exhibits, not the least of which was the honey above mentioned, of which Mr. Hoge was the exponent. The Observatory Hives, with bees all visible, held their attention for several minutes; and, though we were not able to point out the queen of our hive, through the denseness of the mass of bees, their Royal Highnesses were gratified in that respect on reaching that of W. Freeman, Esq., whose hive afterwards received the first prize—a hive called by him the 'Baroness,' but which, after such Royal notice, we should feel inclined to promote to the title of 'Princess.'

On another occasion the Kilburn Show was visited by H.R.H. the Duke of Cambridge and his grace the Duke of Sutherland and party, and they were highly pleased with a small case in which the queen, surrounded by her retinue, was exhibited by our junior, causing an observation to fall from H.R.H. on the monarchy in insects.

Another distinguished visitor arrived on the ground during the Show, not on the day appointed, for, through an accident, or rather a series of them, his ship had to put back, and he was delayed. We allude to Mr. T. G. Newman, the Editor of the *American Bee Journal*, who was received with open arms by all who knew his fame, and his kind, genial manner soon made him a general favourite. An advanced bee-keeper, he is most uncompromising against adulteration and humbug in all their bearings, and on several occasions boldly, yet with due modesty, enlarged on the improvements which had taken place in American bee-culture, and, in reference to a honey-market, commended to the notice of English bee-keepers the splendid methods of marketing the product adopted by Messrs. Thurber and Co., aforementioned. He was everywhere received with cheers, and his observations were listened to with profound attention, broken only by the shouts of laughter which his propensity for fun often created.

Monsieur Dennler, the Editor of the Alsacian *Bee Journal*, also honoured the Kensington Show by his presence, and became a competitor in the driving competition, using a stock of bees which we had provided for him; but, although the bees went rapidly into the upper skep, the queen could not be found, and only by tearing out the combs could she be proved to be present; and, singularly, she was found in the mortal embrace of an alien bee, who had gained access to the hive and stung her to death, the sting being found in her body. Monsieur Dennler cannot converse in English, but doubtless his accomplished companion, Colonel Pearson, the translator of the work of the venerable Abbé Collin, which has appeared from time to time in the *B. B. J.*, has helped him to information and explanations which he sought in visiting our Show. We had the honour, also, of meeting the great German bee-master, Herr Gravenhorst, whose hearing is unfortunately defective; and we are promised a visit by him, which will, at least, be

profitable to us, and to which we look forward with pleasure. Doubtless these great bee-luminaries will give their opinions on English doings hereafter, to the benefit of England and the world at large.

AMERICAN HONEY.

We beg to thank you, and through you the other members of the acting Committee, for the fair and courteous treatment bestowed upon our display of American honey at Kilburn. The judges manifested an honest disposition to pin the colours where they rightfully belonged, and it will always be a pleasant recollection that after patient and thorough investigation the highest prize for the best pure honey was given to that we displayed. The quality of our season's shipments has been so frequently and seriously aspersed, that perhaps a firm with less heart in the business would have folded their tents, like the Arabs, and silently stolen away. But we have faith in American bee-keepers, and knowing their honey to be a first-class, meritorious article, we have never abated for a day the struggle to place it in the very front rank; and now, after a hard fight, we are abundantly rewarded by an order from Her Majesty the Queen, the quality of our honey complimented by both their Royal Highnesses the Prince and Princess of Wales, and by its being named the purest and best by such eminently respectable judges. Encouraged by this, and the satisfaction of the public as manifested by the constantly increasing demand for our honey, we have determined to locate a permanent branch in London, where we expect to build up and maintain a good trade in the products of the little almoners of Nature, thus effecting a benefit to the bee-keeping industry, not only in America, but also in Europe.—Yours faithfully, H. K. & F. B. THURBER & Co., *London, July 12th*, 1879.

We received the above letter from Messrs. Thurber, the great American honey caterers for Europe, and we cheerfully publish it. We had 'a good time' at Kilburn with Mr. Hoge, their agent, and did our best to improve the occasion, and with great pleasure acknowledge our obligation to him for his frankness in all matters connected with what has been a vexed question as between us and our American fellow-workers.

English bee-keepers have had great cause to deplore the fact that English honey merchants have for years foisted upon the public the tasteless outcome of Chili, as the finest product of the most celebrated apistical districts, and such 'stuff,' labelled 'Narbonne,' with sundry superlative adjectives appended or soaring in its behalf, led the English world to believe that such (properly named) 'stuff' was the embodiment of excellence; whereas it was simply cheap rubbish, put up in gaudy attire, and sold at large profit, to the great detriment of the English honey producer. It cannot be denied, and, indeed, Mr. Hoge candidly admits, that the earlier consignments of American honey had been 'treated,' such 'treating' having been at the instigation of the dealer to prevent the honey from solidifying, he, the dealer, being perfectly cognisant of the fact, it having been so stated on his invoices.

We do not wish to reopen the question, but with the treated honey in our mind we feel that we said no more than such transactions warranted, but with the present samples before us we have great pleasure in testifying to their general excellence. They vary as did the flowers in the various districts at the times when the nectar was gathered, and one may find in the 'styles of honey,' as the vendors call them, flavours varying from a slight remove from golden syrup to the most delicate-flavoured extract of white-clover blossoms, the prices varying accordingly.

There are few beings in the world who have not, at some period of their life—and many times, too often—written what they would, with a better knowledge of the facts, rather had not been committed to paper, and in this particular, *i.e.*, in regard to American honey, we are willing to withdraw anything which we have written which may be thought to impugn the integrity of Thurber's comb honey: it is beautiful in appearance, and sufficiently varied in flavour to please all tastes; and to increase its popularity we would venture to suggest that every package should bear a number or name, which would ensure a purchaser of honey of an approved flavour being able at all times and places to get other parcels of the same precise quality.—ED. *B. B. J.*

NEW BEE-TRAP.

We are indebted to Mr. W. T. Braddy of Kelvedon, Essex, for a suggestion which will be valuable to those who have supers to empty of their bees. It is no more or less than a tube of perforated zinc, 6 inches long, inserted into the super, through which the bees may escape. The tube sticks out of the super, and the bees, after passing through it, do not attempt to return by the same route, but cling around its point of insertion into the super. It is described as *most effective*, and its inventor has such confidence in it, that he leaves his supers or nadirs for whole days, feeling assured that no bee will gain re-admittance.

OUR VISITORS.

A most delightful afternoon was spent on Monday last at the mansion of T. W. Cowan, Esq., of Horsham, who had kindly invited all our foreign guests to meet as many British bee-keepers as could, at short notice, be got together. Everything was charming, weather included, and will form the subject of a future notice; but at the present moment we cannot resist the desire to let all bee-keepers know that a resolution was passed approving the

sentiment expressed in an appeal on behalf of the Rev. L. L. Langstroth, the father of modern bee-keeping, now in reduced circumstances through a set of brain-vampires having robbed him of his means of livelihood. The list of contributions is headed—

Rev. H. R. Peel	...	...	£1 1 0
C. N. Abbott	...	...	1 1 0

Contributions may be sent to the Editor of the *B. B. J.*

FORTHCOMING SHOWS, 1879.

See also Engagements of British Bee-keepers' Bee Tent.

August.—Central Show at Exeter, date not fixed. Hon. Sec., W. N. Griffin, Rock House, Alphington, Exeter.

August.—Halberton Branch of the Devon and Exeter Bee-keepers' Association, date not fixed. Hon. Sec., W. N. Griffin, as above.

August.—Caledonian at Perth ends.

8*th.*—Berkeley Flower Show, Gloucestershire.

8*th* and 9*th.*—Edgbaston, Birmingham, Villiers Blakemore, Esq., Edgbaston, Hon. Sec.

13*th.*—West Herts, Watford. Rev. H. R. Peel, Hon. Sec., Abbot's Hill, Hemel Hempstead.

14*th.*—St. Mary Cray. J. Garret, Hon. Sec., Hockenden, St. Mary Cray.

19*th* and 20*th.*—Devon and Exeter Bee-keepers' Association Show at Plymouth, in connexion with the Royal Western Horticultural Society. Hon. Sec., W. N. Griffin, as above.

20*th.*—Somerton, Somerset.

20*th* and 21*st.*—Shropshire, at Floral and Horticultural Show, Shrewsbury. Rev. Hon. C. Feilding, Hon. Sec., Stapleton Rectory, Shrewsbury.

21*st.*—Dorsetshire at Dorchester.

26*th.*—Long Buckby.

29*th* and 30*th.*—Arbroath, N. B. J. Stewart, Hon. Sec., Arbroath.

September 3*rd.*—Much Hadam, Ware, Herts.

4*th.*—Horsham, Sussex.

4*th*, 5*th*, 6*th.*—East of Scotland, Dundee. Hon. Sec., W. Raitt, Bee Croft, Blairgowrie, N. B.

5*th* and 6*th.*—Nottingham at the Arboretum.

9*th* and 10*th.*—Warwickshire at Atherstone.

12*th.*—Shifnal.

October 1*st* and 2*nd.*—Hertfordshire County Association, Hemel Hempstead, Rev. H. R. Peel, Hon. Sec., as above.

8*th* and 9*th.* — Lincolnshire Bee-keepers' Association, in connexion with the Long Sutton Agricultural Society. Hon. Sec., R. R. Godfrey, Watergate, Grantham. [Postponed from September 17*th* and 18*th.*]

ENGAGEMENTS FOR THE BEE-TENT FOR 1879.

Aug. 8.—Berkeley Flower Show, Gloucestershire.

Aug. 8 and 9.—Horticultural Show, Botanical Gardens, Edgbaston, Birmingham.

Aug. 13.—West Herts Horticultural Show at Watford.

Aug. 14.—St. Mary's Cray Bee and Honey Show.

Aug. 20 and 21.—Shropshire Horticultural and Bee and Honey Show at Shrewsbury.

Aug. 21.—Sevenoaks Horticultural Show.

Aug. 26.—Long Buckby Horticultural Show.

Sep. 3.—Much Hadam Ware Cottage Garden Show.

Sep. 3.—Rickmansworth Flower Show.

Sep. 4.—Horsham Flower Show, Sussex.

Sep. 9 and 10.—Warwickshire Agricultural Show at Atherstone.

Sep. 11.—Harpenden Flower Show.

Oct. 1 and 2.—Hertfordshire County Bee-keepers' Show at Hemel Hempstead.

Other engagements are in course of arrangement.

KILBURN SHOW.

Official Report of the Judges of Bees, Hives, and Honey.

In making our Report on the bees, hives, honey, and manipulations, in connexion with the Society's Show at Kilburn, we, the Judges, remark the great popularity and undoubted success of this attempt to introduce to the notice of British agriculturists the improved methods of bee-culture, which now prevail both at home and on the great Continents of Europe and America.

There can be no doubt, judging from the crowds by which the exhibition was daily visited, the extreme interest evinced by the public generally in the manipulations of living bees, and the explanations so ably given by some of our leading apiarians, that this department of our great annual national show was one of the most attractive of the entire exhibition.

We earnestly trust that the science of apiculture, which in ancient times was always considered a branch of agriculture,—and although it may be a small matter, it is by no means an unimportant one: 'In tenui labor, at tenuis non gloria,' as Virgil sang of old,—may become better known and appreciated by the agricultural community at large, from its exhibition having assigned to it a portion of the Royal Society's patronage at its annually recurring Show.

In the department for Observatory Hives there were eight entries, displaying the advance made of late years in this class of hive.

The hive of Mr. Freeman was a model of neatness of construction, and we had no hesitation in awarding to it the first prize.

It consists of six frames, which, when closed—three in front, and three at back—have communication with the entrance by means of a channel, through which the bees pass to and fro. The two outside frames of each set of three are moveable, and turn upon a pivot, while the third and centre one is fixed; and all communicate with a centre opening through which the bees come from all combs, and enter the channel in connexion with the entrance to the hive. Each frame is enclosed in glass, rendering both sides of the combs visible.

Mr. Brice Wilson, of Newbury, Berks, obtained second prize with a hive of most ingenious construction, containing also six frames, but differing from the former in having all its frames moveable. These are placed on the sides of a hexagon, and can be joined together to form a compact hive for the preservation of heat during the winter months.

Mr. Abbott's third prize hive was of very simple and less costly construction. It is intended to be fixed to a wall, and moved horizontally at pleasure, the combs being placed vertically, one above the other.

In Class 375, 'For the best hive on the moveable comb principle, with best arrangements for securing a harvest of comb honey, with covering and stand complete,' there were twenty entries; and Messrs. Abbott, of Fairlawn, Southall, received the first prize for their hive 'Superlative,' No. 985, there being no other exhibit which united so many combinations of almost every principle adapted for securing a large honey harvest, in portable and saleable form, together with practical utility as regards the

wintering of the bees, and the inducement to work in its supers. Space will not permit of our fully describing the principles involved in this hive; but its chief features are—great facility for increasing or diminishing the size of the hive to any extent desired; adaptation to the systems of supers, nadirs, collateral, or longitudinal deprivation; natural or artificial swarming; and last, but not least, the facility with which any portion of the combs of the hive may be withdrawn for manipulation in the Extractor.

The second prize was awarded to Mr. J. M. Hooker, of Sevenoaks, for his hive the 'Alexandra,' the construction of which, for strength, solidity, and soundness of material, leaves nothing to be desired. Its chief feature consists in the placing of a duplicate hive above the stock-hive, by means of which a swarm, issuing from the parent hive, can be placed over it until furnished with comb and brood, when stock and swarm are again united, royal quarrels settled by combat, and overflowing population secured for work in supers, for which the usual arrangements are made, tiers of sections being placed collaterally, and provision for super deprivation; another advantage being the moveability of the combs of the hive laterally, free from any disturbance of supers.

Mr. Neighbour secured third prize, his hive being adapted for working sections both laterally and as supers, having, also, the same advantages as the former hive for the lateral movement of the hive frames.

Mr. Lee, of Bagshot, Reserve and highly commended, No. 975, whose hive, a model of neatness and skilful workmanship, deserves special mention, his dummy being a novel but practical idea.

Messrs. Clapp, of Abbot's Hill, and Thorne, of Ashwell, Herts, fully merited the high commendations which they received.

On the whole, we have no hesitation in reporting this class most excellent, and in stating our belief that in no other nation could such a collection of hives, either as regards principle or workmanship, be brought together, the competition being unusually severe.

In Class 376: 'Honey in sectional supers, not exceeding 3lbs. each section,' the show, doubtless in consequence of the unfavourable season, and the early time of holding, was but a poor one. With the exception of Mr. Thurber's display of upwards of one ton of honey-comb, in small sectional supers, there was no entry of any note. This obtained first prize, but the quality was by no means equal to first-class English honey; and if America cannot supply us with a finer quality than this, we have no fear of her much-dreaded competition in our honey-market. The second prize was awarded to Mr. Thorne for sections, which were only partially sealed; and third to M. Lucio Paglia, an Italian exhibitor, for sections also, to which the same remark applies.

An American Honey-extractor, in which the combs are emptied, by means of centrifugal force, and afterwards replaced in the hive to be refilled, attracted much attention.

No English machine of the kind was exhibited, in consequence, no doubt, of there being no class or prize assigned in the schedule.

We noticed also several smaller apiarian appliances, which need not be here specified, but which are well calculated to advance the science, and most useful to manipulators.

The only other subject requiring mention is the driving competition—by far the most attractive portion of the show. This was witnessed by thousands with the greatest interest; and the people were taught, by demonstrations, by descriptions, and by lectures, the loss sustained by themselves and the country at large, by the wasteful practice of suffocating the bees, in order to obtain the honey from even the straw hive.

Mr. C. N. Abbott, the Editor of the *British Bee Journal*, was the most successful competitor: driving his bees from the old-fashioned straw skep, capturing the queen in the ascent, and transferring the combs and bees to a bar-frame hive, in the space of 14 minutes 35 seconds.

Mr. Baldwin, the expert of the British Bee-keepers' Association, obtained second prize, occupying under the same operation 18 minutes 5 seconds; and Mr. Martin, a cottager of High Wycombe, took third prize, performing his work in 19 minutes 20 seconds. These manipulators, judging from the cool manner in which they handled their bees, captured their queens, and transferred the combs, were evidently able tacticians and skilled veterans in bee-culture and practice.

That bees perform an important part in agriculture, the advantages of which cannot be over-estimated in the production of seed, fruit, &c. is an undoubted fact. This was illustrated in our colony of New Zealand. Before the late Rev. W. C. Cotton introduced the honey-bee in 1842, the colonists were obliged to import Dutch clover-seed (*Trifolium repens*) annually; but owing to the introduction of the honey-bee they are now able to export it.

We cannnot conclude these remarks without paying a tribute of well-earned praise to the officials of the British Bee-keepers' Association, who, under the most trying circumstances and unseasonable weather, carried out their programme in such a manner as to give general satisfaction to all concerned; and the Bee Show at Kilburn will long be remembered as an epoch in the apiarian annals of this country.

WILLIAM CARR,
GEORGE RAYNOR,
July 2nd, 1879. THOMAS WM. COWAN.

OFFICIAL REPORTS OF THE JUDGES OF THE SOUTH KENSINGTON SHOW.

[*Reports of Classes 1 to 8, and on the Driving Competition, will be given in the September Number.*—ED.]

REPORT OF THE JUDGES, CLASSES FROM 9 TO 19.

It is melancholy to see how sadly the depressed state of weather has affected the show of honey, the exhibits being extremely few, and, in most cases, such as, from their merit, would in ordinary years deserve no attention. The Judges would suggest that in the future it would be well to insist upon the gross and net weight of honey exhibits being stated in every case. They feel that in the exceptional year the meagreness of the show of honey calls for no further remark, unless it were to warn bee-keepers to give their special attention in preparing their stocks for the winter.

C. FEILDING, BENJ. HARDING,
M. KETTLEWELL, C. TITE.
July 22, 1879. H. BOSTOCK,

REPORT OF THE JUDGES, CLASS 28.

No. 163.—An admirable and well-arranged and preserved collection of bee flowers; the description appended to each concise and practical. The omission of several early and useful plants was noticed. The Judges recommend that the flowers should not be bound together,* but spread out, so as to be more readily available to the inspection of the public.

W. INGRAM,
A. F. B. BARRON.
DR. HOGG.

REPORT OF THE JUDGES ON CLASSES 23, 24, 25, 26, 27, 29, 30, 31, 32.

Class 23.—For the best and largest collection of Hives, Bee-furniture, Bee-gear, and Bee-keepers' necessaries, no two articles to be alike, first prize, silver medal; second prize, bronze medal; third prize, certificate.

There is a very large number of articles shown in this

* Probably referring to the winning collection being tied together in the form of a book.—ED.

Class, particularly in the two exhibits Nos. 121 and 123. The first prize is awarded to No. 121, Mr. Abbott's collection, and the second prize is awarded to No. 123, but they both contain nearly everything of merit used at present in or about an apiary. There are upwards of a hundred articles in No. 121, and nearly a hundred in No. 123. In the former appeared the Bingham and Hetherington Honey-knife, which is likely to supersede the old form of uncapping knife; a metal frame containing liquid food, to be fed in the body of the hive; and an excellent cool and, above all, very cheap form of hat, well adapted for, or with, bee veil. There are hives, of course, in every form as adapted for all circumstances by the firm of Messrs. Abbott. In No. 123 appears the machine for making the celebrated American impressed wax-foundation, and the well-known Stewarton hive among other equally familiar ones of Messrs. Neighbour. The third prize falls to the only other exhibit in this class, namely No. 122. The number of articles in this exhibit are very much less in number, being chiefly confined to hives, supers, and stands, but they are all remarkable for their excellent workmanship and finish.

Class 24.—For the best Honey Extractor, first prize, silver medal; second prize, bronze medal; third prize, certificate. In this class the first prize is unhesitatingly awarded to No. 130, an entirely novel arrangement for extracting the honey from both sides of the pairs of combs without withdrawing them from the Extractor, invented and exhibited by Mr. Cowan. This arrangement, which works perfectly automatically upon simply reversing the handle used to revolve the combs, is wonderfully simple in all its working parts, which are also very few in number, and all easily detachable and as easily replaced, and seems to be deserving of the highest praise. Mr. Cowan also had a very ingenious adaptation of reversible combs in a cheaper form of Extractor, with a revolving can, No. 131, that will be likely to suit many who cannot afford a large outlay, but the arrangement necessitates the can being detached from its stand and turned over to pour out the honey, and would cause serious delay in extracting a large quantity. This objection is, however, capable of being easily removed by a slight alteration in the machine; the judges therefore awarded it the third prize, giving the second to No. 126, an American machine, exhibited by the makers, Messrs. Everitt Bros.; this has, like No. 130, the gearing brought out by 'Novice' (editor of *Gleanings in Bee Culture*, published in America), it runs very lightly and has in addition to a strainer a large receptacle for honey below the revolving cage, and has also, like No. 120, the usual honey gate. There are twelve entries for competition in this class, which possess considerable merit.

Class 25.—For finest samples of Bees' Wax, not less than 3 lbs. weight, prizes, 10*s.*; 7*s.* 6*d.*; 5*s.*; 2*s.* 6*d.* There are twelve entries for this class, the first prize is awarded to No. 145; the second to No. 139; the third to No. 142; the fourth to No. 138, an American product; there are a pair of very handsome bars, No. 136, of foreign wax, but the odour is not considered satisfactory.

Class 26.—For any invention calculated in the opinion of the judges to advance the Culture of Bees. Silver or bronze medal. The judges do not feel justified in awarding any prize in this class. No. 151, Abbott's plan of applying hot water to heat supers, and No. 153, Mr. Cowan's plan for ventilating a hive, are both commended for their ingenuity, but the judges considered that their practical value requires further proof.

Class 27.—For the best Microscopic Slides, illustrating the natural history of the Honey Bee. Silver medal. There is only one entry in this class, but though there is no competition, the merit of the collection fully justifies the award of the silver medal in the opinion of the judges.

Class 29.—For best and cheapest pair of Honey Jars, with covers and fastenings complete, to contain 1 lb. and 2 lb. of extracted honey. First prize, 1*l*; second prize, 10*s.*; third prize, 7*s.* 6*d.* There are only two entries, but those shown under No. 166 are considered to be so good and reasonable in price that the first prize of 20*s.* is awarded; the other, No. 167, introduces a ready mode of securing the contents, and receives the second prize of 10*s.*

Class 30.—For the best smoker. Bronze medal. In this class, No. 171, exhibited by Steele, and made on the pattern of the American one brought out by 'Novice,' received the first prize; and No. 172, which had a metal guard to the fire tube, is commended. There are six entered for competition.

Class 31.—For the best Bee Dress. Bronze medal. There are two entries, the prize is awarded to No. 175, a veil with wire gauze inserted.

Class 32.—For the best set of diagrams illustrating the Honey Bee, bronze medal. There are three exhibits, and the Judges award the first prize to No. 179, most beautiful drawings by Mr. Cheshire, illustrating, among other things, some most interesting particulars of the mode of strengthening the capped drone brood combs, hitherto unknown. In consideration of the special merit of this exhibit, the Judges recommend that a silver medal be awarded in place of the bronze one. No. 178, the now well-known beautiful Italian illustrations, is commended.

DUNCAN STEWART.
F. R. JACKSON.
CHARLES E. FLETCHER.
J. LAWSON SISSON.

COMMITTEE MEETING, JULY 9TH.

Committee Meeting, held in the Council Room of the Society for the Prevention of Cruelty to Animals, 105 Jermyn Street, St. James's, on Wednesday, July 9th. Present,—Mr. C. N. Abbott, in the Chair, Messrs. Bartrum, Hooker, Cheshire, Hunter, Glennie, and the Secretary. The Minutes of the last meeting were read, confirmed, and signed. The Balance Sheet for the month not having been prepared, in consequence of the extra work attendant upon the Exhibition at the Royal Agricultural Society Show at Kilburn, was reserved until the Quarterly Meeting on the 22nd instant.

With reference to the Members' Admission Tickets to the Bee Tent, it was resolved that they should be marked '*Not transferable.*' Also that Bishop Tozer should be requested to preside over the general meeting in the event of Lord Aberdare being unable to do so.

The Secretary read a letter which he had received from Mr. Cowan, containing a suggestion as to the rules and regulations for the driving competition; and in accordance therewith it was proposed by the Rev. E. Bartrum, seconded by Mr. Cheshire, 'That the bees for the driving competition shall be placed on their arrival in the Gardens in the spot selected by the Committee, and allowed to fly; and that the driving competition shall be reckoned to commence from the time when the competitor leaves the Bee Tent (by the direction of the judge) to fetch his bees.'

Proposed by Mr. Glennie, seconded by Mr. Cheshire, 'That the secretary request competitors to have their bees upon the ground not later than 10 o'clock.'

It was resolved unanimously, 'That the Secretary be empowered to order a luncheon for the judges on the first day of the Show, and for the Committee during the three days of the Show, the price not to exceed 3*s.* per head, including beer, tea, or coffee; wine to be paid for extra.'

Proposed by Mr. Abbott, seconded by Mr. Cheshire, 'That the Secretary inform the competitors that their exhibits can be received at the R. H. Gardens and taken care of on Saturday, July 19; and that all exhibits, excepting those in the Honey Classes and Honey Fair, must be delivered at the entrance in Park Lane before the closing of the Gardens on Monday, July 21.'

A letter was read from Mr. R. R. Godfrey, containing

some suggestions as to a division of labour amongst the Committee in the superintendence of the various classes, and an offer to find scarlet uniforms for two boys who should sell the Catalogue. The offer was thankfully accepted.

A microscopical exhibition was suggested by Mr. Cheshire, and it was agreed that Messrs. Abbott, Cheshire, and Hooker, should meet the Secretary in the R. H. Gardens on the 19th instant, at three o'clock, to complete these and other necessary arrangements.

Mr. C. N. Abbott kindly undertook the office of Judge as an honorary appointment at the exhibition of bees, hives, and honey, in connexion with the Show of the Warwickshire Agricultural Society in Merivale Park, near Atherstone, on September 9th and 10th.

Quarterly Meeting, July 22nd.

The Quarterly Meeting of the Committee for conferring with the representatives of the County Associations was held in the Albert Hall on Tuesday, July 22nd, at 5 p.m. Present,—Mr. T. W. Cowan, in the Chair, Rev. E. Bartrum, R. R. Godfrey, J. Hunter, J. M. Hooker, F. Cheshire, members of the Committee; Rev. H. R. Peel, *Hon. Sec.*, Rev. C. J. G. Jenyns (representative of Herts), Mr. W. Ingram (Lincolnshire), Mr. F. Lemare and Captain Campbell (Surrey), Hon. and Rev. C. Feilding (Shropshire), Mr. W. N. Griffin (Devonshire), and other gentlemen who are engaged in the formation of County Associations, were requested to attend.

There were two points brought before the meeting by the Hon. Sec.: (1.) The necessity for the Shows of County Associations being fixed as early in the year as possible in order to prevent disappointment, and to ensure the attendance of the Bee Tent and manipulator. (2.) The importance of establishing depôts in the principal towns of each county having an Association, in which the best specimens of hives and other bee furniture can be exhibited, and orders received for similar articles.

With reference to *first* point, the Rev. C. J. G. Jenyns pointed out that as Bee Shows are generally connected with Flower Shows, it is impossible to fix the dates for County Local Bee Shows until the managers of Flower Shows have decided upon the dates for the holding of their exhibitions. Several other speakers mentioned various difficulties of a similar nature which militated against early fixtures. On the other hand, it was contended that the Secretary of the Shropshire County Association had found no difficulty in fixing the Bee Show for that county as early as the month of January, and that the great success which had attended the late Show at Guildford, when they had decided to hold an exhibition notwithstanding the postponement of the Clandon Park Flower Show, was an argument in favour of Bee-keepers' Societies not being too dependent upon the managers of Flower Shows.

With reference to the *second* point, the Establishment of Depôts by County Associations, the Hon. Secretary stated what had been done in this respect by the Hertfordshire County Association. Depôts had been established in the towns of Hertford, St. Albans, Watford, Great Berkhampstead, Hemel Hempstead, and Baldock; and though they were as yet only in their infancy, he believed that they had already done much towards making the public acquainted with the modern appliances for bee-keeping. The system adopted in Hertfordshire was this. The County Secretary invited some manufacturer to supply a depôt in each of the towns named with specimens of hives, bee-furniture of different prices, cheapness being desirable if combined with good quality of wood and workmanship. These specimens are exhibited in the window of the tradesman holding the depôt, and orders (*prepaid*) are received by him for similar articles, which are furnished by the manufacturer. The price of the goods is then forwarded to the manufacturer by the holder of the depôt, a commission of 10 per cent being deducted from the amount received by him from the person who ordered and prepaid the goods.

The Rev. Edward Bartrum expressed a hope that the goods supplied to the holders of depôts as specimens by manufacturers would be really of a cheap, as well as substantial character. He found that intending purchasers were frightened away by the prices asked for the articles exhibited.

Attention was called to the very inexpensive character of the hives being exhibited in Classes 3 and 4, at the present moment in the Western Quadrant, none of which exceeded 10s. in price, whilst many of them, offering every requisite for a cottager, were priced at 5s. or less, and one exhibited by Mr. Lyon was marked at 1s. 6*d*. After much discussion the idea of the establishment of depôts as an educational measure appeared to be generally approved, but further experience of its working was deemed necessary before a definite opinion could be passed upon it.

The monthly statement for the month of June was then read, the balance in the hands of the Treasures amounting to 14*l*. 2*s*. 0½*d*.

CONVERSAZIONE

held in the Albert Hall, South Kensington, on Tuesday, July 22nd, 1879.

The Right Rev. Bishop Tozer in the chair. Present, Messrs. Cowan, Hunter, Lemare, Feilding, Campbell, Carr, Sells, Sisson, Jackson, F. W., Jackson, J. P. Cheshire, Gravenhorst, Pearson, Harding, Wheeller, Godfrey, Green, Bartrum, and many others.

The chairman called on Mr. W. Ingram to read his paper.

The Plants and Flowers most worthy of Cultivation as Honey-Producers: by W. Ingram, Esq., *of Belvoir Castle Gardens.*

On the presumption that as an apiarian and as a large cultivator of a class of hardy plants not much noticed beyond Botanic Gardens in the present day, I should be in a position to give you some information concerning the relation of those plants to bees, and their capabilities of affording them useful food, your secretary has requested me to introduce the interesting subject of bee-flowers to this meeting. Our botanical collectors have sent us floral gems from every country in the world, from the temperate zones of the Alps and Andes, from the lofty Himalayas, from China and Japan, from the stern asperities of the Rocky Mountains, from storied Greece, and from the rugged slopes of Scandinavian hills. Trees, and shrubs, and flowers have been gathered and transported to our woods, and fields, and gardens, and have been found to flourish, and to give us freely their gifts of fruitfulness, bloom, and beauty. Such additions to the indigenous flora of our country offer us, as apiarians, a singularly extended choice; and it will be our own fault if we do not avail ourselves of materials so rich and varied, such, indeed, as were never gathered together in any country in the world's history. In naming and recommending certain exotic flowers for general cultivation in the gardens of those persons interested in bees, and even advocating their extension beyond those limits, we must still for the present regard such aids as subsidiary. Bees will not be diverted from their natural pasturages; and the great sources of supply, in early fruit blossom, in bean and clover fields, in the woods, and in the wild flowers of our heaths and meadows, must still be our dependence as food-producing areas for our bees. *But as food is most valuable when most required*, and supplies from the sources I have indicated are not always available when most necessary, we must make use, largely and freely, of the materials which our travellers and botanists have placed within our reach. There are periods in the

year when but few of our native plants appear in bloom, and we often see in very early spring that bees are tempted from their hives by a little sunshine, and many of you must have observed the enjoyment they have in visiting any chance flower they may find expanded. I think I may be assured of your concurrence when I say, that it is most desirable to cultivate as many early blooming plants as possible, to meet the anxious craving of bees for their natural food: and I have prepared a list of very early hardy plants, which I will submit to you and comment on by-and-by.

Now as an argument for the cultivation of bee-plants during the summer, it must be remembered that the native supply is not continuous. There are wide spaces of time between fruit-blossom, and clover, and beans, and lime, and these gaps may be usefully filled up by the judicious selection of suitable plants. And there is another great argument for the home cultivation of bee-flowers, which in the present season must have pressed forcibly on your notice. Bees are averse to travelling; and when threatening clouds are gathering on the horizon, flowers provided close at home enable the busy workers to continue their useful labours of gathering and storing food. I may, perhaps, venture to say that in extending the cultivation of bee-flowers, the necessity for the employment of artificial condiments may be to a certain extent obviated. I cannot imagine but that sugar and water must be but an imperfect substitute for the rich pabulum found by bees in the nectarious glands of pure and beautiful flowers.

I may here remark that the co-relationship existing between bees and flowers is very intimate, and the dependence which may seem to exist on the part of the insect is not wholly so. The action of bees in visiting expanded flowers, and thus ensuring fertilisation by effectively distributing the pollen, is not the only good they effect. Visiting successively flowers of the same species, they carry pollen from one plant to another, thus averting the necessity for self-fertilisation, and in consequence the decay and degradation of the race, and effecting the good that is recognised to accrue from the fertilisation of the flower by pollen, not derived from the same plant.

I have now to bring to your notice the various plants which I believe may be cultivated with great advantage by apiarians for spring bloom. With me, in ordinary seasons there is no earlier or sweeter flower than that produced by the Winter honeysuckle (Lonicera fragrantissima), and every bee-keeper should be in possession of this excellent shrub, which can be grown against either an east, or west, or south wall. I may associate with it Jasminum nudiflorum, which is equally early but less fragrant. As a plant which produces very early flowers, and may be grown in any wild and unconsidered spot, Tussilago fragrans may be mentioned. Then a very beautiful and precocious crocus called C. Imperialis. Closely following this is a bright blue anemone, from the Appennines, called Blenda, succeeded by a paler blue named Appennina; with this also appears Iris reticulata, a perfect gem amongst plants. The Siberian violets and their floriculturally enlarged allies should find a place in every garden, as they are rare; in early spring they are without flowers. Then we arrive at one of the best and most easily cultivated spring flowers Arabis albida, of which there are two varieties, one preceding the other by some weeks; this should be largely grown: and associated with this is the pretty little lilac Aubietia from Greece, which doubtless fed the classic bees of that land so rich in recollections interesting the human race: so much do I appreciate this plant that I have lately set out some 5000 seedlings.

Another plant, not so generally grown, but valuable for its habit of early blooming, is Cardamine rotundifolia. Erica carnea and herbacea, two spring blooming heaths, are much visited by bees. The Primrose and early Cowslip (Macrocalyx) should be grown in every bee-keeper's garden; and also the early border hyacinths, particularly the single forms, which, thanks to our Dutch neighbours, are cheap and easily attainable. I am not prepared to say which amongst the many forms of Croci is the best for bees; but the common yellow crocus is much visited by bees. Scilla bifolia and Siberica are early and attractive to bees; and Fumaria solida purpurea, once introduced into your gardens, will not soon be lost, and will afford a large surface of bloom. Several early shrubs should on no account be omitted. Rhododendron dauricum atrovirens, and Andromeda floribunda, and Chimonanthus fragrans, are very early and valuable.

I have mentioned the more prominent spring flowers: Lonicera fragrantissima, Jasminum nudiflorum, Croci, Anemones, Violets, Aralis, Aubrietia, Cardamine, Erica, Primrose, Hyacinth, Scilla, Fumaria, Rhododendron, Andromeda, and Chimonanthus; and the list might be easily extended; but gifts of food from this array of very early plants before the blossoming of native plants will not be an inappreciative advantage to bees.

I can only venture to particularise a small number of the numerous hardy summer blooming plants, specimens of which are in the collection I have exhibited. The few I can with confidence name, I am persuaded will be greatly valued by bee-keepers when their merits are known. First, the little hardy Californian annual or biennial, Limnenthis Douglasi, a plant that withstands our most severe seasons, that blooms freely, reappears constantly from seed, and is preferred by bees to almost any other flower in its season—May, June, July. The next is Verbascum phœnicium, a plant of less duration, but in great favour with bees in June and July. Epilobium angustifolium album is attractive to bees, and Thymus montanus albus and Veronica rupestris are equally so in June and July. These plants should be in the garden of every bee-keeper.

I feel that I have only lightly touched upon a very interesting subject, and my paper must be regarded as a slight and imperfect notice of it.

The *Rev. J. L. Sisson* having thanked Mr. Ingram for his most able and instructive paper, mentioned the Snowy Mespilus, or Medlar, sometimes called Mespilus Canadiensis, which he had met with in Gloucestershire, as an excellent plant, which he recommended all bee-keepers to cultivate, as flowering early when no other shrubs are available: he had found it mentioned in the works of Label and Miller.

The *Rev. E. Bartrum*—It is a mistake, as I have found by experience, to cultivate any great number of flowers for the sake of the bees. I should recommend the following:—Wall-flower for spring. Borage, particularly pretty and useful in moist as well as dry weather: it continues in flower a long time, and readily propagates itself. Phacelia, a free-growing plant, of which the bees are very fond, and which, I believe, affords honey of good quality: it continues in bloom a long time. Mignonette, rather difficult to grow, but most useful. Melilot Clover, often recommended, is, I believe, a mistake. It is a biennial, and rarely blooms the first year. It occupies a great space, is a very rank grower, and at present is not with me fully out in bloom.

Mr. T. W. Cowan asked Mr. Ingram, which of the plants he had mentioned afforded honey, and which pollen to the bees. The box and the crocus both afforded pollen, but not honey. The Phacelia was also covered by bees. He wished to know whether the Jasminum nudiflorum was not poisonous, Kalmia latifolia was also said to be poisonous. It was now in full bloom, but if poisonous it had better not be cultivated near an apiary. It was a plant requiring a peaty soil. Buddea globosa was also a favourite plant with bees. The Cherlock, Myosotis, Ledum angustifolium, which required a peaty soil, and the Epilobium hirsutum, were all much visited by bees,

and yielded an abundance of honey. For late feeding the Golden Rod (Solidago) is indispensable.

The *Hon. and Rev. C. Feilding* asked whether Furze or Gorse produced honey, and received an answer in the affirmative from Mr. Ingram.

Mr. F. R. Jackson (Slindon) said that the Gorse in his neighbourhood was much frequented by bees, but thought that it produced pollen rather than honey. Laurustinus was an abundant producer of pollen. He confirmed Mr. Cowan's statement as to the partiality of bees for Cherlock.

Mr. F. Lyon observed that bees frequented the Blue Veronica, a remark confirmed by Mr. Ingram.

Mr. T. W. Cowan wished to add to his former list of flowers liked by bees: the Catmip (Scrophularia nodosa) and the Prickly Comfrey (Symphitum asperrimum). With regard to the latter plant he had been unable to ascertain whether the bees drained the honey from the plant with their tongues, or whether they pierced it at the lower end. He not only advocated the growth of plants for producing honey, but also those which produced propolis, and mentioned the Poplar and Chestnut trees as yielding the latter in large quantities.

Mr. Ingram said that he knew the bean, a plant with a long tube, to be perforated by bees.

Mr. Jackson spoke of the Lime-tree as affording abundance of honey.

Mr. Carr also mentioned the Butterburr (Catomiasta microphylla) as being good for bees.

Bishop Tozer thanked Mr. Ingram, not only for the Paper, to which all had listened with so much interest, but also for his former kindness in sending a beautiful collection of spring flowers to the last Conversazione. He thought it a good sign for the British Bee-keepers' Association when such men as Professor Redwood and Mr. W. Ingram take an interest and a part in its proceedings.

After a touching tribute to the memory of the late Rev. Charles Cotton, author of *My Bee Book*, and other works on apiculture, the Bishop brought the Conversazione to a conclusion, and the meeting separated with a well-earned vote of thanks to the Chairman.

Extraordinary Committee Meeting, July 23rd.

Extraordinary Committee Meeting held in the large Conservatory of the Royal Horticultural Gardens on the morning of Wednesday, July 23rd, to consider the protests made by Messrs. Sells and Hunt. Present.—Mr. T. W. Cowan, in the Chair, Rev. George Raynor, Mr. J. M. Hooker, Mr. F. Cheshire, Mr. R. R. Godfrey, and the Secretary. Protests were read from Messrs. W. Sells and W. Hunt against the exhibits of Mr. Thorne, in Classes 12, 14, and 15, upon the ground that they were not staged until after the time given in the Rules of the Association.

These protests and the circumstances which had given rise to them having been investigated, it was found that Mr. Thorne had complied with Rule 4 in the Prize Schedule, in having delivered his honey at the door of the Western Quadrant in the Royal Horticultural Gardens before 10 a.m. on Tuesday, July 22nd. The Secretary was requested to inform the persons protesting of this fact.

Mr. Cheshire proposed and the Secretary seconded—'That the Special Prize awarded to the former be withheld on the ground that it had not been delivered at the Show in accordance with Rule 4.' After discussion it was found impracticable to apply this penalty to all Exhibitors who had not complied with this Rule, as it was impossible to ascertain the names of such Exhibitors with certainty during the present Exhibition, and it was therefore proposed by the Chairman, and seconded by Mr. J. M. Hooker, 'That at future Shows notice be given to Exhibitors that unless their Exhibits are delivered in accordance with the Rules as to time, such Exhibits will be labelled—*Too late for competition.*'

The Chairman said that he thought it would be advisable to purchase Mr. Cheshire's diagrams, for a reasonable amount, and to have the same reduced and published in a smaller form for sale to members at a nominal price, and to the public at a sufficient price to cover the expenses. The subject was reserved for discussion at a future meeting.

General Meeting.

A general meeting of the members of the British Bee-keepers' Association, held in the Albert Hall, on Wednesday, July 23, at 6 p.m. The Right Rev. Bishop Tozer in the chair. Present, Rev. G. Raynor, Mr. W. Carr, Mr. F. R. Jackson (Slindon), Mr. J. P. Jackson (Enfield), Mr. J. Lemare, F. Lyon, F. Cheshire, Captain Martin, C. E. Fletcher, W. L. Manning, J. Hunter.

The discussion was confined to three points:—

1. The progress made in the formation of County Associations.

2. The steps which had been taken by the Committee to facilitate the sale of members' honey.

3. The appointment of Vice-Presidents.

The Secretary gave a list of the County Associations which had already been established, viz. in Shropshire, Lincolnshire, Hertfordshire, Devon, Dorset, Surrey, and announced that steps were being taken to form similar associations in Warwickshire, Lancashire, the West Riding of Yorkshire, Kent, Nottinghamshire, and, as he had heard that afternoon, in Wiltshire, and spoke of the mutual benefit which the Parent and County Associations would receive from one another.

The Chairman was glad to hear of the progress which was being made in the formation of the County Associations, and spoke of the liberal terms which the parent society offered to its children; and, alluding to the meeting of the previous evening, spoke of the interest manifested by the representatives of the county associations in coming from such distant counties as Devon and Shropshire to be present at the quarterly meetings. He thought it desirable to have a cheap manual of bee-keeping drawn up by the Association and disseminated amongst cottagers.

The Secretary explained that the Hertfordshire Bee Association had obtained Mr. Desborough's permission to reprint his lecture, and bore testimony to the avidity with which it was purchased at the price of 2*d.* at the different flower and bee shows. He mentioned a little American book, which he proposed to submit to the Committee as a specimen of what was required for circulation amongst cottagers. Mr. Cheshire, Mr. Lemare, Mr. F. Lyon, Captain Martin, and others joined in the discussion.

With reference to point 2, the Secretary explained that a sub-committee had been appointed, consisting of Mr. F. Cheshire, Mr. J. P. Jackson, and himself, to carry out a scheme for affording members facilities for the sale of their honey; that certain shopkeepers in Covent Garden, and in other parts of London, had offered to purchase honey offered in saleable form; that any member wishing to dispose of his honey might communicate the quantity and lowest price which he would take to Mr. S. J. Baldwin, Gipsy Cottage, South Vale, Upper Norwood, who would quote him the market price in London, and if in accordance with the price fixed, would direct him when to forward it, charging him a commission of 5 per cent. All honey to be sent carriage-paid. A statement of all honey sold to be laid before the committee monthly, and Mr. Baldwin to receive a similar commission to that exacted from the seller of honey.

An animated discussion arose upon the difficulties which might be expected in carring out such a scheme, Captain Martin, John Walton, Mr. J. P. Jackson, and others recording their experiences in sending honey by

railway. The discussion was at last terminated by Mr. F. Cheshire, who reminded the meeting that the scheme for bringing the seller and the purchaser into communication with each other was already decided upon, and had to be tried before it was condemned. The Secretary also said, that difficulties might, no doubt, be expected: but that few difficulties were insuperable, if properly encountered. He begged the meeting to give the proposed scheme a fair trial.

The appointment of Vice-Presidents was allowed to stand over for the present.

OFFICIAL AWARD OF PRIZES.

HIVES.—Class 1—For the best Hive for observation purposes, all combs to be visible on both sides, to be exhibited stocked with bees and their queen: 1st, J. A. Abbott, silver medal; 2nd, W. Freeman, bronze medal; 3rd, C. T. Abbott, certificate; extra prize, F. Cheshire. Class 2—For the best and most complete Moveable Comb Hive, to include covering, stand, and facilities for storing surplus honey: 1st, J. M. Hooker, silver medal; 2nd, C. T. Abbott, bronze medal; S. J. Baldwin, certificate; Highly commended, Messrs. G. Neighbour and Son. Class 3—For the most economical (best and cheapest) complete Hive, on the moveable comb principle, for cottagers' use, including cover, floor-board, and facilities for storing surplus honey. Price not to exceed 10s. 6d.: 1st, Messrs. Green and Son, silver medal; 2nd, R. Steele, bronze medal; 3rd, W. Hollands, certificate; Highly commended, C. T. Abbott. Class 4—For the best Straw Hive for depriving purposes, cost to be taken into consideration. Price not to exceed 5s.: G. Neighbour and Son, silver medal.

SUPERS.—Class 5—For the cheapest, neatest, and best Supers for producing honey in the comb in a saleable form: 1st, R. Steele, silver medal; 2nd, S. J. Baldwin, bronze medal; 3rd, G. Neighbour and Son, certificate; Highly commended, W. Hollands.

BEES.—Class 6—For the best stock of Ligurian Bees: 1st, C. N. Abbott, silver medal; 2nd, G. Neighbour and Son, bronze medal. Class 7—For the best stock of other Foreign Bees: 1st, G. Neighbour and Son, silver medal; 2nd, J. P. Jackson, bronze medal; 3rd, G. Neighbour and Son, certificate. Class 8—For the best stock of pure English Bees: equal 1st, G. Neighbour and Son, and S. J. Baldwin, silver medal.

HONEY.—Class 9—For the largest and best harvest of Honey in the comb from one stock of bees, under any system or combination of systems (one prize awarded): S. Thorne, 3l. Class 10—For the best exhibition of Super Honey from one apiary: (no exhibit). Class 11—For the best Super of Honey. The super to be of wood, straw, or of wood in combination with glass or straw: 1st, S. Thorne, 2l.; 4th, Mrs. L. Spencer, 15s. Class 12—For the best Glass Super of Honey: 1st, J. S. Thorne, 1l.; 4th, W. Sells, 7s. 6d. Class 13—For the best exhibition of Honey in Supers, or section of Supers, separable, and each not more than 3 lbs. in weight, the total weight of each entry not to be less than 12 lbs.: 1st, S. Thorne, 2l.; 2nd, W. Hunt, 1l. Class 14—For the best single section in the Comb, weighing not more than 3 lbs.: 1st, W. Hunt, 10s.; 2nd, S. Thorne, 5s Class 15—For the largest and best exhibition of Run or Extracted Honey in glasses, not to exceed 2 lbs. each: 1st, W. Hunt, 1l. 10s.; 2nd, S. Thorne, 1l.

COTTAGERS' CLASSES.—Class 16—For the largest and best exhibition of Super Honey in Comb, the property of one exhibitor, and gathered by his own bees: 1st, W. Martin, 1l. and hive; 2nd, J. Walton, 10s. and hive. Class 17—For the best Super of Honey: (no exhibit.) Class 18—For the largest and best exhibition of Honey in sectional supers, each section not to exceed 3 lbs. in weight: 1st, P. Skinner, 1l. 10s.; 2nd, Thomas Sells, 1l.; 3rd, W. Martin, 15s. Class 19—For the best exhibition of Run or Extracted Honey in glass jars, not to exceed 2 lbs. each: 1st, J. Walton, 1l.; 2nd, W. Martin, 15s.

FOREIGN AND COLONIAL CLASSES.—Class 20—For the best exhibit of Honey in the Comb, either in sectional or other Supers, the total weight of each entry not to be less than 12 lbs.: 3rd, Lucio Paglia, 1l. Class 21—For the best exhibition of Run or Extracted Honey in glass jars, not to exceed 2 lbs. each: 2nd, M. Demuth, 15s.

COMESTIBLES.—Class 22—For the best Mead or Beer made from Honey, with recipe attached: 1st, C. N. Abbott, silver medal; 2nd, R. Scott, bronze medal: 3rd, R. R. Godfrey, certificate.

MISCELLANEOUS.—Class 23—For the best and largest collection of Hives, Bee Furniture, Bee Gear, and Bee-keepers' necessaries; no two articles to be alike: 1st, C. N. Abbott, silver medal; 2nd, G. Neighbour and Son, bronze Medal; 3rd, A. Rushbidge, certificate. Class 24—For the best Honey Extractor: 1st, T. W. Cowan, silver medal: 2nd, Everitt, Brothers, bronze medal; 3rd, T. W. Cowan, certificate. Class 25—For the finest sample of pure Bees' Wax, not less than 3 lbs. in weight: 1st, W. Martin, 10s.; 2nd, W. Hunt, 7s. 6d.; 3rd, W. Sells, 5s.: 4th, J. A. Abbott, 2s 6d. Class 26—For any Invention calculated in the opinion of the Judges to advance the culture of bees: Commended, C. N. Abbott and T. W. Cowan. Class 27—For the best Microscopic Studies illustrating the natural history of the Honey Bee: J. Hunter, silver medal. Class 28—For the best and largest display of British Bee Flora in a dried state or otherwise. Each plant or specimen must have a card attached, stating time of flowering, duration of bloom, and any other particulars calculated to be of interest to bee-keepers: 1st, Mrs. Ellen Rooke, silver medal and 1l.; 2nd, R. R. Godfrey, bronze medal and 10s.; 3rd, E. Whealler, certificate and 5s. Class 29—For the best and cheapest pair of Honey Jars, with covers and fastenings complete, to contain 1 lb. and 2lb. each of extracted honey: 1st, C. N. Abbott, 1l.: 2nd, J. M. Hooker, 10s. Class 30—For the best Smoker: 1st, R. Steele, bronze medal; Commended, G. Neighbour and Son. Class 31—For the best Bee Dress: F. Lyon, bronze medal Class 32—For the best set of Diagrams illustrating the Honey bee: 1st, F. Cheshire, bronze medal; Commended, R. R. Godfrey.

DRIVING COMPETITION—For the competitor who shall in the neatest, quickest, and most complete manner drive out the bees from a straw skep, capture and exhibit the queen: 1st, J. Walton, silver medal and 1l.: 2nd, J. A. Abbott, bronze medal and 10s.; 3rd, S. J. Baldwin, certificate and 5s.

DONATIONS TO THE PRIZE FUND.

	£	s.	d.
The Baroness Burdett Coutts	7	0	0
Rev. E. Bartrum	1	1	0
T. W. Cowan, Esq.	1	1	0
R. R. Godfrey, Esq.	1	1	0
F. R. Jackson, Esq.	1	1	0
H. G. Morris, Esq.	1	1	0
Rev. H. R. Peel	2	2	0
Messrs. Nunn and Sons	2	2	0
Mr. R. J. Bennett.....	0	10	6
Rev. J. L. Sisson	0	10	0
G. Walker, Esq.	1	1	0
Mr. S. Simmins.....	0	10	0
Mr. W. Sells	0	5	0
R. Symington, Esq.	2	2	0
J. G. Desborough, Esq.	0	15	0

H. Bostock, Esq.	£2	2	0
George Neighbour & Son	1	1	0
Captain P. E. Martin	1	1	0
C. H. Hodgson, Esq.	0	5	0
Mr. A. Cameron	0	3	0
J. Bassano, Esq.	1	1	0
Rev. Thos. Milles	0	5	0
Rev. G. Raynor	1	1	0
J. M. Hooker, Esq.	1	1	0

DEVON AND EXETER BEE-KEEPERS' ASSOCIATION.

Show at Tiverton.

(*From the Tiverton Gazette and East Devon Herald.*)

In connexion with the Tiverton Horticultural Society, the Devon and Exeter Bee-keepers' Association held a branch exhibition of bees and their produce, hives and bee furniture, &c., on the 3rd July, 1879.

The Exhibition was the first of its kind ever held in Tiverton, and considerable interest was therefore manifested in it by the various visitors. There were not many competitors, however, owing to the recent very unpropitious season having prevented the bees from gathering honey. For the reason just named there was no specimen of honey exhibited, and the prizes in the first three classes were consequently, of course, withdrawn, as well as those in Classes 5 and 6 for exhibits of honey by cottagers. The Rev. J. Dickinson showed a fine example of bees' wax, which for cleanness and purity could scarcely be excelled; it secured the first prize. Mr. W. N. Griffin, the indefatigable hon. sec. of the Association, also exhibited in this class a very good specimen, which was awarded second prize. Mr. Griffin had likewise entered for competition a very cleverly constructed observatory hive, stocked with combs, bees, and their queen in working order. For this hive Mr. Griffin was awarded a prize of 1*l.* and first-class certificate. Messrs. G. Neighbour and Son, Regent Street, London, were successful exhibitors in Classes 8 and 9 for the most perfect bar-frame hive with covering and stand, and for the most complete hive on the moveable comb principle, suitable for cottagers. In Class 10 for the best straw hive for depriving purposes, cost to be taken into consideration, there were eight entries, varying from the common cottage hive with flat top to straw hives with frames, and one was exhibited with a small straw super. The best exhibitor in this class was Mr. John Wilcox, whose specimens ranged in price from 2*s.* 9*d.* to 10*s.* 6*d.* The third prize was won by Mr. W. N. Griffin. In Class 11 for the best collection of hives and bee furniture the hon. sec. Mr. W. N. Griffin again came to the front, and secured highest honours. His exhibits were much eulogised, and included an artificial American comb, small sectional supers capable of containing from one to three pounds, bee-feeders of various descriptions, a Woodbury super with glass sides, a bee-trap for the clearing bees out of supers, a bee-dress for the protection of manipulators, &c. In Class 12 Mr. R. Steele, of Dundee, showed an ingenious centrifugal honey extractor, a machine used for forcing honey out of combs without injuring them, and replacing the combs when re-filled, thus saving a great deal of time wasted by the old system. Mr. Steele and Mr. Griffin each exhibited a sectional super fitted in a box and intended for general use in an apiary. The Judges considered the competitors in this class equal in merit, and the prize was therefore divided between them. The Judges were the Rev. W. Everett (Dorchester), and Mr. J. B. Browning (Exeter).

List of Prizes.

Class 4.—For the best sample of bees-wax in cakes not less than one pound—1, Mr. Dickinson; 2, W. N. Griffin.

For Open Competition—Hives.—Class 7.—For the best observatory hive stocked with combs, bees and their queen, in proper working order, all combs to be visible on both sides. The bees must be securely confined—1, and first-class certificate, W. N. Griffin.

Class 8.—For the most perfect bar-frame hive, with covering and stand—1, and first-class certificate, G. Neighbour and Son.

Class 9.—For the best and most complete hive on the moveable comb principle, suitable for cottagers—No First; 2, Messrs. Geo. Neighbour and Sons.

Class 10.—For the best straw hive for depriving purposes, cost to be taken into consideration—1, and first-class certificate, J. Wilcox; 2, and second-class certificate, J. Wilcox; 3, W. N. Griffin.

Miscellaneous.—Class 11.—For the best and largest collection of hives, bee furniture, and apiculturists' necessaries, no two articles to be alike—1, and first-class certificate, W. N. Griffin.

Class 12.—For the best honey extractor—1, certificate, R. Steele.

Class 13.—For the cheapest and best super for general use in an apiary—1, and certificate, W. N. Griffin and R. Steele (equal).

The apiary manipulations were watched with keen interest by a large number of spectators, and consisted of driving the bees from straw hives to bar-frame hives, cutting the combs, fixing bar-frames, looking for the queen-bee and exhibiting her to the on-lookers, uniting the bees and returning them to the bar-frame hive, swarming at the pleasure of the bee-master, and showing how docile bees are when properly managed. Those who executed the manipulations were the Revs. J. Dickinson (Tiverton), W. H. Webster (Tiverton), J. Everett (Dorchester), H. Pennell (Lincoln), Mr. J. C. Kennedy (Tiverton), and Mr. W. N. Griffin (Exeter). We may add, that although numbers of ladies and others were afraid to venture into the tent, there was not the slightest danger, as the public were protected by means of a veil drawn across the portion of the marquee in which the operations were carried on.

SURREY BEE-KEEPERS' ASSOCIATION.

The bee show of the above Association, announced to be held in Clandon Park, was, owing to the Cottage Garden Show with which it was associated being postponed, by the Committee transferred to the grounds of Henry Parson, Esq., The Firs, Guildford, one of the vice-presidents of the Association. The weather proving favourable, a numerous and select company assembled, giving the Association much encouragement in their starting of Bee exhibitions. As we have before remarked, the Association could not be charged with an ostentatious schedule of prizes, and their greater endeavour to induce the better system of bee-keeping amongst cottagers was well sustained. There was but little honey displayed, viz., one pair of octagon supers exhibited by Mr. Craigg, and one set of sectional supers by W. H. Clarke, Esq., of Wimbledon. A varied collection of hives and bee-gear was exhibited, Messrs. Neighbour, of Holborn, supplying a goodly assortment; also Messrs. Abbott Brothers, of Southall. Both these firms contributed a unicomb or observation hive, stocked with bees, making a strong feature in the show.

The competition for hives was limited to the best and cheapest hive for cottager's use on the moveable comb principle. The first prize was awarded to Mr. Fuggle, of Brede, Sussex; the second to Mr. Lee, of Bagshot; the third to Mr. Baldwin, of Norwood. There was a competition of three exhibitors for the best stock of bees. The prize—a bar-framed hive with sectional supers, &c. —given by Mr. Baldwin, of Norwood, was awarded to William Heathorn, of Godalming, who afterwards sold the bees to the prize-giver, for driving purposes at the Exhibition of the British Bee-keepers' Association Show,

at South Kensington, on the 22nd ultimo. Some private members of the Association exhibited—not for competition—hives, with and without bees.

Though last, by no means least, was the Manipulating Tent of the British Bee-keepers' Association, wherein the public, from the confidence given them by its construction, crowded to witness the able displays of the manipulator; and many inquiries were made by the visitors of those who sought to explain the objects of the display. We heartily congratulate the Association on their success, and doubt not this is but an earnest of more extensive usefulness in promoting bee-culture, and we hope to hear of large additions to their members.

The judges were Mr. C. N. Abbott, of Fairlawn, Southall; and Mr. Dashper, of Guildford.

DORCHESTER BEE-KEEPERS' ASSOCIATION.

The above Association will hold an Exhibition of Bees and their Produce, Hives and Bee-furniture, in Colliton Park, Dorchester, on Thursday August 21st, 1879, at the same time as, and in connexion with, the Annual Exhibition of the Dorset County Horticultural Society. There will also be some interesting practical apiarian manipulations, such as driving and transferring bees from one kind of hive to another, and extracting honey without injuring the beesor destroying the combs. Admission to the Bee Show from 1 to 3 p.m. 6*d.*; from 3 to 9 p.m. 3*d*. Further particulars of W. Osmond, Esq., Dorchester.

BERKS AND BUCKS BEE-KEEPERS' ASSOCIATION.

On Wednesday evening, July 16th, 1879, a meeting of bee-keepers' was held in the Porney schoolroom, Eton, (by the kind permission of the vicar), the Rev. C. C. James, of Eton College, in the chair.

Resolved: (1) That in the opinion of this meeting an Association of Bee-keepers is desirable and one be formed forthwith, to be called 'The Berks and Bucks Bee-keepers' Association,' having for its object the encouragement of improved bee-culture, as set forth in rule 2. (2) The election of members of Council be postponed until the existence and objects of the Association are better known in both counties. (3) In the meantime, members are requested to do all in their power to enlist others in its ranks, especially the clergy and country gentlemen, who may be expected to take an earnest interest in the welfare of the rural population.

In the interests of the Association, any assistance, either by way of subscription or otherwise would be gratefully received by your obedient servant, WILLIAM S. DARBY, Hon. Sec. (*pro tem.*), *St. Stephen's Villas Clewer, Windsor.*

HERTFORDSHIRE BEE SHOW.

Postponement of the Hertfordshire Show announced to be held at Hereford, on July 17th, in connexion with the Summer Flower Show, held by the Hertford Labourers' Friendly Society. No entries having been received up to the date of closing, Saturday July 5th, the secretary had determined to send the Bee Tent alone to the Show of the Labourers' Friendly Society, and to offer a prize for the best and strongest skep of bees. On the 14th he received notice from the Secretary of the Flower Show stating, in consequence of the inclement state of the weather, the Show had been postponed until September 4th. Herts exhibitors will do well to note that the entries for the Hemel Hempstead Show, to be held on October 1st and 2nd (same dates on which The Poultry and Pigeon Show will be held) will close on Saturday, September 20th, and that no entries can be received after that date on any pretence whatever.

POSTPONEMENT OF THE LINCOLNSHIRE BEE SHOW.—The Lincolnshire Bee Show, to be held at Long Sutton, has, in consequence of the late harvest, been postponed till Wednesday and Thursday, Oct. 8th and 9th.

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

THE LATE W. C. COTTON.

In your notice in last month's *Journal* of the late Rev. W. C. Cotton, and his literary productions, you have omitted to mention a most amusing work published in 1872 entitled *Buzz-a-Buzz, or the Bees done freely into English,* by the author of *My Bee Book,* from the German of Wilhelm Busch. It is written in rhyme, profusely illustrated, and as the author says in his preface, 'The verses were written up to the pictures rather than translated from the German Text.' It is a most amusing production, and there is much truth lying hid under the comical stories, and still more in the illustrations (as he also says in his preface), and the notes which are appended may be found useful even by serious bee-masters; and any one who saw the honest, burly, English form of the author, in his quaint blouse, at the first show of the British Bee-keepers' Association at the Crystal Palace, will read *Buzz-a-Buzz* with redoubled delight.

In his preface to *Buzz-a-Buzz,* Mr. Cotton promises a second edition of *My Bee Book* as perfect as he could make it, and with as little delay as possible, but it has not yet made his appearance. If he has left any materials for a second edition it is to be hoped some energetic bee-master will be able to take it up and publish it.—J. G. DESBOROUGH.

THE LATE ABBÉ COLLIN.

I feel that you and many other readers of your *Journal* will lament the death of the old French *apiculteur* the Abbé Collin, in his seventy-ninth year, from an accident while engaged in hiving a swarm of bees on the 14th of last month. Monsieur Collin had devoted, so to speak, his whole life to the study of apiculture; and though too old readily to accept the new and improved methods now so generally adopted, had in his time added many steps to the ladder by which these improved methods have been reached. His work on the Bee and Bee-keeping, part of which has appeared in your *Journal,* has reached the fifth edition, which alone will show the share he has had in promoting the science of apiculture, and in superseding the use of the brimstone-pit in France.

Monsieur Collin was born in the first year of the present century, and in or about 1824 was appointed curé of Tomblaine, a village distant about two miles from Nancy. There he remained for thirty-seven years, and he carried on his studies in bee-keeping and bee habits. He was a man of much *esprit:* witty and pleasant in his conversation, and a fine classical scholar—the love for the Latin

poets breaking out from time to time as he talked with you, even to the last. As a Churchman he was a fine specimen of the old Gallican clergy, utterly free from any sort of bigotry or intolerance.

Monsieur Collin was still fairly strong, considering his great age. The last eighteen years of his life he passed as honorary canon of the Church of Bon Secours at Nancy, to which a residence is attached, and where he kept usually from twelve to twenty hives in his garden, but entirely for his own experiments. Indeed, he never kept bees in any sort of way for profit, and rather looked on the ordinary taking of honey from a hive as a sort of theft, which in a certain sense was an unfair proceeding to his little friends, who had laboured so hard to store it, and to whom his whole life had been one long-continued devotion.

The Abbé Collin died in harness as much as any soldier ever did on the field of battle. One of his hives had swarmed on the morning of the 14th of June, and having no one to call to his aid at the moment, he got a ladder, and with the help of his old servant placed it against the tree. He had mounted about four feet, when feeling the ladder shake, he unfortunately leaped to the ground, shattering his right anklebone and the bone of the leg in several places. He had every possible medical attention; but even to a young and strong man the accident would have been of the most grave nature; and at his advanced age amputation was impossible. A naturally good constitution enabled him to struggle against it for some time; but at his age the shock was too great, and he died peacefully on the 25th of June, eleven days after the accident.—G. F. Pearson.

QUEEN PIPING—WHY?

Having got a queen (said to be a fertile imported Ligurian), after being caged the usual time I let her at liberty. The bees took kindly to her: she then commenced piping. I drew the frame to see if she and the bees were all right, when I saw her flatten herself and again commence piping. After moving a little bit farther on the comb, the bees backing out of her way, she commenced piping again, and repeated the same for five or six times. No queens nor queen-cells in the same hive, unless the one spoken of above. I cannot say her age; but the time it would take for transit from Italy or Switzerland, be as it may. Kindly give your idea of her being fertilised, or the reason of her piping at such a time.—A. B. C., *Baldovie, Dundee.*

[We have repeatedly asserted our opinion that queens 'pipe' through hunger, irrespective of age and condition, and not, as has been fantastically considered, through desire for combat with sister princesses. We have many times seen a multiplicity of young queens in a hive, and have always seen them try to avoid each other, or, perhaps, we ought to say, the weaker tried to avoid meeting with the stronger. Anyhow, they would rather swarm out than fight. Their disposition will account for after-swarms coming off at such unseemly times—often late in the evening it is the effort of the young princess to avoid destruction, though her followers may not be sufficient to enable her to establish a colony. Piping, in our opinion, is no index on the question of fertility.—Ed.]

QUEEN-PIPING.

I write to ask your opinion in regard to the Ligurian queen I received yesterday. The hive not being ready to receive her, she is retained in the box she came in, and this morning, when all was quiet, there was suddenly the high note of piping, and, simultaneously, the bees with her burst into a loud buzzing. I was surprised, and after intervals of a few minutes the piping was twice repeated. I know the note so well, that there can be no doubt of the fact; and having always supposed that after being fertilised a queen ceases to pipe, I fear this one has been sent away too soon. It certainly shows that it is not from the excitement of rival princesses that piping is induced. Will you let me have your opinion at once? If the queen is not fertilised and Ligurianised she is useless.—A. R., *Alnwick.*

[Please refer to previous Note.—Ed.]

Glanton Pyke, Alnwick, July 12th.—'I cannot yet report on the queen which piped. In a day or two I hope to ascertain if she has been laying eggs. It is gratifying to find that the subject of bee-keeping is likely to become as popular as it ought to be, and the meetings and exhibitions of hives, &c., and, above all, of the operations in the bee tent must awaken a lively interest in the subject, as well as convince many that bee manipulation is not so formidable as is supposed. With bar and frame-hives, the management of bees is quite within a lady's powers. Two ladies and myself have been transferring bees and combs, to strengthen weak hives, raising artificial queens, caging others, capturing queens, removing supers, and, in short, having our bees and hives entirely under command; and a very interesting amusement we find it. This season is a very unfavourable one for honey gathering. Swarming is very late, and where attention has not been paid, failures from starvation are not uncommon.'—A. R.

Glanton Pyke, Alnwick, July 19th.—'I am glad to have a confirmation of your opinion, that fertile queens may pipe, from the success of the queen which piped in her travelling-box. On the ninth day after being liberated, eggs and larvæ were in the hive, the former queen having then been removed twelve days. The weather had been wet, and the temperature too low, to admit of the Ligurian queen being fertilised in the interval. Is it probable, that while in the box, in which there was honey in the comb, and with her own bees, that she could so require food as to be constrained to pipe for it? is there no other sentiment or excitement which might account for what is unusual in a matured queen?'—A. Reed.

BEE-KEEPING IN ALGERIA.

I have just got the news that at the '*Concours Régional*' of Beauvaise—in other words, Flower and Bee Show—I have been awarded a '*Médaille de Vermeil*' (silver-gilt) for the completeness of my exhibit, and especially the introduction of the manufacture of foundation into France, as also my supers, when the principal judge was Mons. Hamet. You may imagine I consider this a triumph. I have sold all my bees and leave here very soon—heat unbearable, killing me—so I will locate near Paris (D.V.), and run a few hives in the Gâtinais, if possible. This was an awful season for bees here—three swarms on sixty hives and *not a drop of honey.* Same all around—Arabs and French Algerian bees and Italians all alike.—Arthur Todd, *Blidale, Algeria, July* 8, 1879.

BEES WITH LOFTY NOTIONS.

HOW TO BRING THEM DOWN

'Oh! dear me! after all my care and watching you have got quite above me.' So thought Miss T—— as she stood with tongs and shovel in hand, viewing, with no little anxiety, a beautiful swarm, which had issued from a straw hive, and was now suspended to an overhanging branch of a lofty tree in the garden. A wishful look at the darling pets, evidently enjoying their outing, then a deep sigh, next a thought as to how best to proceed to secure them.

A happy thought flashes across her mind.

'I will send for Mrs. W——,' exclaims Miss T——. 'She will know.'

In a few moments down comes Mrs. W——, who, taking a rapid survey of the position, at once conceives a plan of capturing the errant bees.

A twenty-foot ladder is quickly reared against the side of the tree; up she ascends, rake in hand, having first fixed Joe, the gardener, with a straw skep at the end of a pitchfork in his hand. One shake, and in drop the bees, which are lowered, quickly turned over, and placed upon their new stand, to the great delight of Miss T——, who has now a higher opinion than ever of the ability of Mrs. W——.

The accompanying sketch will more plainly show the novel performance, if you think it deserving of a place in your next issue. —R. R. Godfrey.

BEE-KEEPING AT WARMINSTER.

(An Eldorado.)

The Ligurian queen I had from you is doing splendidly. The hive is quite full of young Ligurians and they are ready for a super; I am delighted with her. The hive I wrote you about 1 find is doing first-rate; the queen is laying in every comb. I don't yet know whether she has crossed with a common drone; she looks a fine insect. Although we have had such unfavourable weather my bees have done well—what they would have done with fine weather I should be afraid to say. I have one hive on which I have, at the present time, forty-two 2 lbs. section supers of Abbott's No. 38, and the bees have them all full of comb and fairly full of honey. I have this morning put on fourteen more, so they now have fifty-six on, and they are working in the new one already. I suppose you will think I have done wrong. I have nine hives in an old malt-house, this is one of them. Another of my hives has filled, splendidly, two of Lee's Crystal Palace supers. The same hive is now working well in two of your No. 29 supers; this is a splendid hive, it was a second swarm of last year. All my hives I wanted to swarm, have done so for the first one only; I have had no second ones as yet. I had two good swarms on the 30th ult., one was the largest I have ever seen. They completely filled the straw hive I took them in, previous to placing them in one of your Standard's. I now find they are working in all ten frames from side to side. I heard of two first swarms belonging to one man coming off at 6 p.m., one day last week; but is it unusual to have first swarms so late? The two swarms joined, and are already working in a super. —R. R. V.

BEE-KEEPING AT BLAIRGOWRIE.

I am glad to hear of your success at the Kilburn Show, and specially of the Royal encouragement you have had. We need it all just now; for were England not a land of amateurs, the truth is, we should have to knock under to the hard times. I sorely pity the many poor men who have invested in bees and bee-gear this year, and can get no returns. This is July 9th, and I have not a super on yet: have been feeding up till now. Last year I supered several hives on June 8th. Unless in fed hives, the populations are not increasing: drones are being massacred, white bees thrown out, and princesses three weeks old not mated yet. The worst of it is there is a magnificent bloom of raspberry, strawberry, and clover, all around for a week past, and soon will be past the best. If I do not get some heather honey I shall have none at all. What's to become of our shows if this continues? We have no Yankee tons to make a display with: they have not got as far north yet. We shall, as we have done before, have to fall back on the former year's stocks left in dealers' hands before we can make a display. But it's no use crying over it. The 'times are out of joint,' and will be, until the unlucky planets get through with some malign influences they are hatching against us—and that will be some years yet. As it goes, I am more concerned in the price of sugar than in that of honey. —W. Raitt.

PROSPECTS IN LINCOLNSHIRE.

Just a word about the bees and their prospects hereabouts. Swarming to-day instead of working in supers; this is about one of their best working days. Brown mustard in bloom. I have been a bee-keeper forty years, and have not known such a retarded season. Our Flower Show at Boston was on 1st and 2nd inst., I could not show a small glass full, although I have hitherto always done so. I have only three small bell-glasses on, and do not expect to get them properly filled. But we may have a favourable spurt in the weather, and then gaps may be filled up. Wheat is only just now coming into ear, and it will be another week before we can take up a few favoured plots of early potatoes. Everything backward: grass-mowing just commencing; hope the honey season has at last commenced in your neighbourhood. Trusting you may go on and prosper.—James Lighton, *Frampton, July 5th.*

INDIAN BEES.

Can any of your readers tell me anything about Indian bees? Has any one ever succeeded in getting them into an English hive; and if so, what pattern is best? I should think you will find this an interesting question to open up. I have several times tried to get them into 'ghurrahs' or 'chatties,' as they do in Ceylon, but have always failed. Has the little native Australian bees ever been hived? The introduction of these little non-stingers, who make such beautiful pollen, would be an interesting novelty in England. I have taken many a fine load of their honey, but I never heard of their being hived. I should fancy hives, for both India and Australia, would need to have a large dead-air space, as the heat is tremendous.—A Missionary.

WHITE-EYED DRONES.

I have these drones in one of my hives, and I can account for them in this way:—The bees were starving for want of food; I opened the hive (having found white bees outside the hive) and found the young drone brood destroyed, but the white-eyed drones, being the nearest to maturity, were the last to be destroyed. They had their cells unsealed, ready to be sacrificed, but as I fed the bees, they allowed the drones to live, and they came out blind with their white eyes, through being exposed to the air a few days before their time. It is certain they are blind, for if you throw one of them up in the air it will knock its head against a tree or hive, or anything that comes in the way.—Br. J., *Ireland.*

SAVING BEE LIFE.

After our show here on the 17th, I found a number of bees still remaining, and the next afternoon I established a 'Home for Lost and Starving Bees.' I put an empty hive, with feeding-bottle on the top and a little syrup on the floor-board, in the place where the hives had stood, and in the evening I found a cluster of about a hundred bees in the hive. Thinking the same thing may occur after the show at Kensington, on a larger scale, I have asked Mr. Peel if some kind friend will place a hive, with syrup and combs (and, if possible, a ripe queen-cell), in the place where the hives have been.—H. Parson, *Guildford.*

[We willingly give insertion to this kindly thought, but a queen-cell given to so few bees would be of little service. It would be almost better to let them find their way to hives in the neighbourhood, than encourage them to remain under such circumstances to certain death.—Ed.]

COOK'S MANUAL.

I have read Mr. Cook's book. There is a good deal that is new in it to me. The separator to the Supers seems to be a valuable idea for straight comb, and the simplicity of the hive he recommends seems a great point. I think your point of doing away with the space between frames and hives during the winter is secured by the Quinby and Bingham hives, which practically make the frame the hive. Each frame fitting close to its neighbour, and a box fitting over all making it double-walled.

Though Mr. Cook does not like these hives he acknowledges that others like them the best. I must say they seem to me useful, and easy of manipulation and of expansion to any size according to locality and season. I specially like the the Bingham hive as containing all the valuable points of the Ayrshire without its disadvantages; shallow and therefore adapted to wax-sheets, and capable of storifying to any extent.

It has struck me that the separators might be made of perforated zinc the same width as advised,

which would make the passage all the more open to the bees. This plan I have also tried this year between supers and hive, placing perforated zinc between middle frame and super and leaving side slits between end frames and supers. The queen is thus confined to the middle frame unless she takes a long journey round, and at the same time the communication for the honey gatherers is freer than if the zinc covered all the frames; the heat moreover arises from the nest to the supers.

What a season! our friend Cook says that you can always be sure of two to three hundred per cent profit in bee-keeping (p. 254). I think it would have puzzled him to make it this year. Here I observe a lack of queens and of propolis, and an excess of drones.

What is 'coffee-sugar?' What is 'drilling?' And 'unbleached factory?'—pp. 160, 161.*

One surmise I can contradict from experience. Cook, p. 98, says, that bees repair to the waters during the heat of summer; my experience is just the contrary, in the spring. I used to find them drowned in numbers on a pond with perpendicular walls. I substituted a small trough which is thronged in early spring, but neglected during summer, and what seems strange it is thronged on wet days.—From Rev. S. Nicholl, *Llandough Rectory, Cowbridge.*

BEE-KEEPING MADE EASY.

By a Cottager.

(*Concluded from page* 36.)

In my last notes I promised to tell you, 'How to create a Market for Sale of Bees and Honey.' Well, it often happens to a person passing your garden to be struck by the appearance of a neat row of hives, and he immediately takes the notion of beginning to keep bees. He inquires if you would sell him a hive; you invariably answer, 'No; I have not my requisite number up yet, and when I have, I'll begin selling then.' By this time the person has purchased elsewhere, whereas, if you sold him the hive in the first instance, some other person would ask him, again, where he bought his hive, and so on.

Same way with honey. You will have to begin sale at once, and in many instances bestow a few sections to persons of influence in your district. Persons visiting there will at once ask the question, 'Where did you get the neat parcel of honey? I wonder if I could get some to buy?' 'Well, I'll make inquiries of the honey man, and will let you know in a few days.'

The majority of bee-keepers are clamouring for a market to sell their honey (although, I think, they will not be troubled much this year) because, when they have little bees and honey, they will not sell for love or money until they work their apiaries up to the standard of their fancies. Other people begin bee-keeping by reading books or papers on the subject; others are born in the business, and hence have their bees and anecdotes handed down as heirlooms. But I would say, let all begin bee-keeping, especially the class to which I belong (cottagers), because it is a great means of keeping the wolf from the door. It keeps you in peace with all men, and especially your employers; he knows you are preparing for the rainy day, and should hard times come upon you, you have your bee business to fall back upon; and hence the necessity of landlords allowing their cottagers to be free and independent tenants of their own, and not under the control of the middleman or farmer, because the education of the country (thanks to the efforts of a wise government) is in the hands of the cottagers to use it to full advantage, and we now have two classes educated, viz. gentlemen's sons and the sons of cottagers, because the farmer's sons must now do the work by reason of being unable to pay for labour to the same extent as formerly. Where the cottager is not the tenant of his landlord, but, on the other hand, a cottier, living at the will of the farmer, he may some fine morning find himself in the following dilemma.

The poor cottager, or cottier, may have a friend dead or sick, or some other cause, and he fails to go to work as usual. Down steps Hodge, and halloas, 'Pat, are you there?' 'Yis,' cries poor Pat. 'What is the reason you left my hay down?' 'I can't help it,' says Pat. 'Shane Magowran is dead, and I must go to the berrin'.' 'The dickens a berrin' you'll go to.' 'But I must,' says Pat. 'Well, if you do, get yourself and your bee-hives to blazes out of this.' Pat has no resource left, but go he must, and before he gets another situation all his hives are sold for a few shillings. I saw nine of such hives sold in a similar manner for 2*s.* 6*d.* each. The middleman, if you disoblige him, has no sympathy whatever for the cottager.

Well, if the cottager rents his own house, what is the result? His family and his bees are his companions; another person employs him next day, and saves him the trouble and sorrow of fretting about his family. If no work turns up he can work in his own garden, and the village shop-keeper will give him credit till he makes sale of his honey; whereas, if he has no stake in the country, he must rear up a section of paupers in the workhouse. Contrast that with a section of bee-keepers in his own cheerful home—a hive of industry. And once the cottager enters a workhouse himself and his family are lost for ever—family ties and home comforts are denied them evermore.

Well, the *Journal* and *Leaflets* are not sufficient to learn us bee-keeping. We want you to publish *A Bee-keepers' Catechism*, with chapters, questions, and answers, such as follow:—Chapter 1. How to Begin Bee-keeping—and so on. It would save you a good deal of trouble, and you could refer all inquirers to it for information. I have no doubt but if you went over all queries in *Journal* since its start, you could publish a neat handy book 'up to the times,' and to be within reach of all should be sold at 1*s.*

In conclusion, I beg to inform the bee-keepers of Ireland, that the firm of Messrs. Thomas Dowse

* 'Coffee-sugar' is white loaf. 'Drilling' and 'unbleached factory' are equivalent to our cheap calicoes.—Ed.

and Sons, 40 Lower Ormond Quay, Dublin, will sell on commission all honey forwarded, carriage paid, in sectional supers, or extracted honey in glass jars, but will not have anything to do with the sale of honey in straw hives. Also state, that it requires to be neatly packed and labelled properly. So it is our own fault not to equal our cousins across the water. Confectioners' empty glass jars can be had for 8*d.* or 1*s.* each; empty brandy bottles, 1*d.* each. Abbott, Bros., should get out a flash label for supers and extracted honey, this would act as a guarantee that we had the genuine article in tow. There is no royal road to fame. Look at the receptions given our Irish farmers at Kilburn; I hope Canon Bagot will have a slap for cottagers next trip to London.—J. TRAYNOR, *Tinahely.*

[We are not sorry this article is concluded, it touches on political questions which we have no desire to see discussed in this *Journal*, and we hope such will not be again introduced. The *Journal* is open for free expression of opinion on bee matters by all who choose to avail themselves of its columns, otherwise we might have condensed this last chapter.—ED. *B. B. J.*]

THE BULL'S MILL BEE FARM.

Extracted from the 'Hertfordshire Mercury.'

An account of a visit, which we paid some months ago to the Bull's Mill Apiary, near Hertford, in the occupation of J. P. Jackson, Esq., will no doubt interest our readers.

It is strange that seeing how eminently favourable the flora of Hertfordshire is for the production of honey, more attention is not paid to the subject. Look at the spreading fields of white clover, lucern, and sainfoin, and the glorious lime-trees that are so plentiful among us. Yet there are few stocks of bees in the possession of our farmers and labourers, and those few are sadly neglected and mismanaged. We are all familiar with the sight of the row of old straw skeps rotting away from the effects of glaring sun and driving rain, and which have nothing but perhaps a few dry cabbage-leaves, and sometimes a milkpan, to protect them. Under such circumstances a harvest of 5 to 10lbs. of honey is quite as much as can be looked for, and it is for such a consideration that the industrious toilers, who have struggled so bravely against damp, excess of heat and cold, and the innumerable vermin that invest their home, are consigned to the sulphur-pit.

Proceeding now to the subject of our sketch, we descend the steep road leading into the Beane Valley and are in front of the apiary. We find that its position leaves little to be desired, for it is on a light gravelly soil and has in its immediate vicinity abundant streams and rivulets, whence may be drawn the supplies of water so necessary for brood-rearing. Then there are woods of oak-trees, so prodigal of 'honey-dew,' and avenues of lime-trees, the delight of bee-keepers.

The opinion was long held that it was the best policy for the possessor of several hives to locate them in a 'bee-house.' That plan has, however, been found to have very many disadvantages—such as the difficulty of operating, the liability of jarring, and so disturbing all the hives when one is touched; so it has now been abandoned by almost all advanced bee-keepers. Here, therefore, the thirty-five to forty hives that compose the apiary are all out in the open, and the only protection they have is a high fence and a belt of evergreens to shield them from the wind and a clump of shrubs on the south side of each stock to protect it from the sun's fiercest rays.

The great economy of space effected by the use of the hexagon, or six-sided figure, and which the bees in the construction of their combs so strikingly illustrate, is here exemplified; not only are the hives grouped so as to be of the form of a bee's cell, but each separate hive has associated with it, each at a distance of six feet, six other hives, so that each is, as it were, in the centre of a hexagon, which again forms the centre of six other hexagons. The bee-tight 'manipulating-house' takes the place of the centre cell of the group. By this method of grouping there is no waste of space, and much of the bee-keeper's time and labour going to and fro is saved. There is also a certain symmetry imported into the grouping, which is varied by the young lime-trees and maples, and the raspberry-canes and currant-bushes, which are planted between the hives. The whole forms a very pleasing sight, and the myriads of 'busy bees' pouring in and out of their homes and darkening the air for a considerable distance around, give, as may be imagined, an air of great animation and activity.

We need hardly tell our readers that the straw skep finds no place here, but is ousted by the moveable comb hive, the principle of which is that the bees are induced to build each comb into a light wooden frame, which is suspended from a ledge at the top of the hive, and when the roof and woollen coverings are removed these frames can be lifted out and the whole economy of the hive studied at pleasure. During the honey season the frames are periodically examined, and those containing honey are swept clear of bees and placed in the 'honey extractor' situated in the manipulating house. A few turns of the handle and a frame of comb is removed quite uninjured, but emptied of honey, and the bees will at once set to work to fill it again. This extremely useful machine, the 'extractor,' consists of an upright cylinder fitted internally with a cage of wirecloth, which, by any of a variety of methods, may be made to revolve at great speed on a central pivot. The honey is flung out of the cells on to the sides of the cylinder, and may be drawn off from the machine perfectly clear and limpid. It is then immediately run into air-tight bottles or jars, and so cleanly and quick is the whole operation, that all the delicate aroma and flavour of the honey are preserved, and an article is obtained far superior, both as regards flavour and nutritive value, to the jams and preserves that figure so largely on our tables. A first prize was awarded to the apiary a few months since, at the annual show of the British Bee-keepers' Association held in the Royal Horticultural Society's Gardens at South Kensington. The quantity, too, of honey that is obtained from hives kept on this system is really wonderful, for the produce of this apiary amounts annually to many cwt., single hives yielding in good seasons 100 or more pounds of honey.

It was with some misgiving that we asked how the inmates of these many hives conducted themselves towards their immediate neighbours, but we were assured that it was a very rare occurrence for any of the cottagers living near to the apiary to be stung, and then only on provocation, and the animals grazing close by appear to possess entire immunity from attack. This is all the more noteworthy, as the apiary contains, besides the common blacks, stocks of the handsome yellow-banded Italian bee.

THE APIARY, HERBERT ROAD, WIMBLEDON.

Herewith I beg to acknowledge the receipt of your *Journal*, which, like the June number, I ordered from *mere* curiosity to see how bee-keepers in general were, or had been, going on this season, thinking I might perhaps be able to draw some consolation from what I should read in the *Journal*. Nor have I been disappointed in this respect, for the gist of both numbers reads like a doleful story, so much so that I feel a kind of pride in having weathered the storm so well, for such it appears to have been to the great majority of bee-keepers. When I ordered this month's number of the *B. B. J.*, I determined that it should be the last, owing to its price; but I

cannot resist the curiosity I feel in learning the end of this extraordinary season, I shall therefore feel obliged to you to send me the August number as well.* Perhaps it might interest some of your readers, that out of seventeen stocks I had last winter, I have lost only one, by starvation, in March. It being always so cold then, and the hives well ensconced, I did not care to dismantle them too soon, believing none needed food. One day, I think, would have saved them, as they were almost warm when I made the discovery. This circumstance induced me to feed all the light ones, though I dislike feeding; by that I mean, I don't hold with feeding, as my experience —although dating only four years back—has taught me that it goes for very little, and more often makes bad worse.† The maxim ought to be impressed upon all would-be bee-keepers, that bees ought never require to be fed. I feel sure you will own, that if bees were kept on that principle, bee-keeping would expand at a greater rate than what it has hitherto done; and since one of the principal objects of the British Bee-keepers' Association is to interest the cottager in bee-keeping, that maxim ought to be brought more to the foreground. A great deal also depends upon constant attention to hives and their immediate surroundings, and proper housing, roofing, and sheltering, none of which subjects have I ever heard prominently brought to the notice of the public at the lectures at the shows. An observant bee-keeper will know that a single one of those long-legged black spiders, generally to be found one under each hive, will kill hundreds of bees during a season, although a spider making a sooty-black web is a still greater enemy to them. Happening to be on Wimbledon Common yesterday to see the camp, I called upon a labouring man who lives in one of the cottages upon which the windmill poses, who I knew keeps bees, for I drove a hive for him two years ago, having spied them in his garden from without. He was very grateful for what I did, for he gave me his bees, which he was about to smother, and begged me to drive some for a lady at Huntly Villas, which he had kindly (?) offered to smother likewise; and I had those too, and an empty skep in the bargain, and many thanks and 'anythin' I liked to take.' His bees and hives were a sorry spectacle for a man who 'professes' to understand something about bees. Out of three hives he had last autumn, he had lost two; and the one left, he told me, had given off a swarm, and whilst expecting a cast as well—which probably there was, and got lost in his absence. The parent hive is now all but dead, and the swarm he hived so weak as hardly to live; and he told me others were similarly situated, and I don't wonder at it. In fact, my opinion is, there are few people fit to keep bees, as the majority who keep them seem to think bees ought to look after themselves, which you know they would do right enough if we took only a little to their home comfort.‡ I have now nineteen hives, having had, so far as I know, four swarms, the two last coming out and settling together on June 29th, making a tremendous swarm, half Ligurian and half English. Never caring to mess bees about more than I can help, I did not like to throw them out of the hive again in order to pick the English queen out; and I was not a little delighted when I found her lying in front of the hive the next day. It being a very large, new, empty, straw skep into which I put them, I fed them well until I read in the *Journal* your observation, that 'to feed a swarm will make it build drone-comb;'§ but considering the weather then, I am afraid they would have fared badly without being fed.* For the first two swarms I fortunately had skeps with comb in, and all are wonderfully strong now, as are *all* the others but one, who I thought was dead for fully a fortnight in April, when to my surprise, one night late —I only leave town about 8 p.m.—on taking it into my tool-house, in order to clear it of dead bees and otherwise clean it and close it against the wax-moth, I heard an appealing buzz. It being only about a pint full of bees, as far as I could make out by the light of my lamp, and not worth while to unite to another stock, I decided to leave them to see what would become of them. I cleaned the hive thoroughly of dead bees, going right up with a wire, and cut out some comb near the bottom, which had got maggots and eggs of some fly adhering to it, and then put them back into their place and fed them; but they either did not require any food or else were too weak to make any impression on the bottle, which, when the weather got warmer, I removed; but they did not seem to get stronger at all, which induced me to gently feed them again, which I have done now for these three weeks,† and I am happy to state they have improved wonderfully since, so much so that they bundle would-be robbers down like a shot. I knew from the first that they had a queen though I had not seen her, as they never hang about on the hive-board like queenless bees do. I am in hopes of their becoming strong enough again to stand the coming winter. I must confess that I am in favour of skeps, as being handier in every respect, especially to parties situated like myself, *i.e.* without command of the time and the moving required by frame hives; and although now Wimbledon is not a spot for bee-pastures, I had some splendid supers last year, one weighing I should think 35lbs. (it was an old straw skep, got a little shallow through old age), which was a solid lump of honey; and one hive weighed at least half-hundredweight after the lime-tree blossoms were over; but this year I have my doubts about any supers unless the weather gets fine and warm at once, and remains so. I have about half an acre of borage planted for my bees on purpose; and if any of your readers wishes to see a sight worth seeing they ought to bend their steps to Herbert Road while that is in flower, which it will be these four weeks to come. I have no doubt you know the honey-yielding properties of that plant. I have literally seen the honey in a small crystal-looking drop suspended from the blossom. Every bee-keeper ought to cultivate that plant above any other. It requires no attention, sows itself, and any excess of them is easily pulled up, and bears transplanting. I grow it to the height of a man, with stalk at the base as thick as my arm. It does not draw the ground in the least; it seems to take all its nourishment from the air, and does not allow a weed to nestle under its wing.‡ Seeing you recommend removing bees in hive with comb in a hand-barrow, allow me to recommend another and in my opinion a much better mode, as it must be apparent to any one who has driven, or been driven, in a wheel-barrow§—I advise a short trial of the latter—

* The price of the *Journal* averages somewhat less than 1½*d.*, per week, and it is sent post free.—Ed.

† This is a kind of cock-and-bull story that 'no fellah can understand.'—Ed.

‡ And took care to feed them to prevent starvation.—Ed.

§ We have made no such sweeping assertion.—Ed.

* How does this square with the assertion that feeding makes bad worse?—Ed.

† Feeding again.—Ed.

‡ We have been well acquainted with the value of borage as a bee-plant for many years, but we have never yet seen it as high as a man, or its base as thick as his arm. The worst of it is that it is useless for any other than honey purposes, except that its leaves are much in demand at Wimbledon (and elsewhere, of course) for flavouring cooling drinks in hot weather.—Ed.

§ Thanks! we are content to think that a *wheel*-barrow would jolt considerably, though many of them *have* springs, but we recommended a *hand*-barrow, and well know the difference between them. Our dictionary says, a 'hand-barrow' is 'a barrow without a wheel carried by two persons,' and though our correspondent may be so hard-headed as to prefer to make seven journeys, each with a

that it must shake them terribly, owing to their springlessness. I carry all my hives—*i.e.* when I have occasion to carry them any distance—on my head; it is the most comfortable, easy, and ready way of any, so much so that of seven hives I took up on the Common, about the furthest end of it, Cæsar's Camp, about two miles from my garden, between five and six o'clock a.m. —I left the entrances of three quite open—and when, on arriving on the Common, where the turf is very elastic, my bees seemed to think they had already arrived at their destination, and began to go out foraging, not a bee ever attempting *otherwise* than to fly, or in any way make themselves answerable to me; and to prove to you with what ease, even if heavy, some of which were very heavy indeed, they can be conveyed on the head by any one on a straight or even road, I may mention that with two out of the seven I had to clamber over a furze hedge surrounding one of the three little cottages situated behind the Rifle Butts, and I did it successfully, and I took them back the same way late in two nights, a time at which it is anything but light walking over bouldery ground like it is among the furze behind the Butts. Another advantage is, that in case any comb were to fall you would feel the thud on the head and act accordingly. With your kind permission, I will let you know the result of my honey harvest this year.—WILLIAM HENNIG.

MY BEES SIXTY YEARS AGO.

'Oh, the days of my childhood! they are gone! they are gone!
But "sweet memory" remains.'

Will you come with me into my picture-gallery?

Picture No. 1.—A bright, active, small gentleman, who lived in advance of the times, standing before an exquisitely-built bee-house, a little brown child with him. He is saying, 'See what industry and perseverance will do.'

The shutters are opened, one by one, the eager child blesses him for the never-to-be-forgotten passing sight of bees, wax, honey, framed in glass.

'How lovely!' was all she could say.

'I built the house myself,' he said, modestly.

Pardon the boast! it was a thing to be proud of: superior workmanship, with lovely carvings wherever good taste allowed it, made with walnut and bay, both trees having lived their day, cut down on purpose for this work out of respect for their age and former beauty.

No. 2.—The brown child sitting on a three-legged stool, in a snug corner of a luxuriant garden, overhung by a noble bay-tree, a double bee-hive in front of her, her own property, a book on bees in her hand, the dear little Grandy's fine high-heeled *shoes* on her feet, a dressy turban on her head, also the quondam property of the dead, but never-to-be-forgotten darling little, black-eyed, beautiful Grandy.

There comes a sudden hailstorm, the book is safely lodged under the hive, the child is running about like a wild thing, as she is, picking up the fallen bees caught by the storm while on the wing.

No. 3.—Nurse Greenley, a Cleopatra for beauty, a Xantippe for temper, rushing out, and with a generous donation of pushes and shakes, dragging the child indoors, screaming beyond your power of imagining, 'You'll be wet through to the skin, you daring, bold child! You'll never be a lady!' Easily escaping from Xantippe, for Cleopatra's brain was away with . . . . leave out the slander: the child is back to her bees.

No. 4.—A kind, gentle, lazy, roly-poly, little governess, carrying a large umbrella, and walking upon her heels, has again seized the child. 'You naughty thing! you are quite incorrigible!' This time she is neither pushed nor shaken, but gently led. 'To show you how ready I am to forgive this very naughty act of disobedience to Greenley, I shall allow you to sit by me to-day, and if we walk out you may hold my hand.' 'Coals of fire' burning deeper than Xantippe's fiercest anger.

No. 5.—A large, airy room, with windows to the ground, the door opening into a flower-garden, the pride and envy of the whole parish, a perfect bee paradise, the room used as the children's schoolroom in the week, and a Sunday school for the village. See the child sitting at a table with Carpenter's Spelling and Johnson's Dictionary before her. Suddenly, she wildly throws her arms across the books, and with a great cry of anguish, exclaims, 'I can't find "incorrigible," and my bees will be wet through to their skins!'—A LADY BEE-KEEPER.

hive on his *caput*, we would much prefer a less number, and as many hives as possible on a hand-barrow. One hive may be carried in the hand or on the head, a practice which we found so inconvenient in the latter case for long distances, that it led in some measure to the adoption of fixed legs to hives as a means of holding them.—ED.

CHEAP HIVES.

I like your observation upon cheap hives in this month's issue very much, and feel sure that no working man need stick to the straw skep and its fixed combs because he cannot obtain at an equally low price a really well-made and serviceable bar-frame hive. I have two stocks in your cheap Woodbury bar-frame hives, and by giving them additional outer walls during the winter, and a quilt upon the top, I find bees winter well in them, and so I do in the Excelsior prize hive, which is of stouter material and well made. My experience last winter has been that the bees have fared better in these hives than in my straw skeps.—JOHN ENOCK, *Silford Gower, Banbury.*

IMPORTANCE OF BEES.—A great bee-master, the Rev. M. Sauppe, in Lükendorf, makes the following calculation, intended to prove the eminent agricultural and economical importance of the rearing of bees:—Of each of the 17,000 hives to be met with in Saxony, 10,000 bees fly out per diem—equal to 170 millions—each bee four times, equal to 680 millions, or, in 100 days, equal to 680,000 millions. Each bee, before flying homewards, visits 50 flowers, therefore the whole assemblage has visited 3,400,000 millions of flowers. If out of the ten only one has become fertilised, 340,000 millions of fertilised flowers would be the result. Supposing the reward for the fertilisation of 5000 flowers to be one German pfennig, the united bees of Saxony have obtained per annum a sum of 68 million pfennigs—680,000 marks (34,000*l.* sterling). Each hive represents in this way a value of 2*l.* sterling.

Echoes from the Hives.

Tinahely, July 9th, 1879.—'The Catechism alluded to in "Bee-keeping made Easy" would be an admirable idea, as no one would be at a loss then; besides, you'd have more time to pick and glean peeps abroad at other bee-keeping countries. The weather has left me without profits this year, bees hanging out in basketfuls, striving to keep them covered with bits of boards and old sacks. A great many people are asking me for advice. Their swarms (very few) have all died with hunger, and a good many stocks gone too. You must be fortunate if you can fill half your orders. I fear it is a bad year to

get swarms for "Big Bee Company." I hope Irish Association will get on well.'—J. Traynor.

[We shall be very glad to give answers to questions, and thus form a catechism; but we can scarcely do both. Many have made the attempt, but have failed. We have been answering queries for the past seven years, and publishing the questions too; and there is little in bee-keeping at present known that has not been touched upon. It is curious how tastes differ. One writes, 'Tell us what to do, and do not make us wade through all the reasons why.' Another cavils at every dogmatic direction, and insists on knowing the reason why, treating us to a set of his own views, for us to wade through, without the slightest compunction. We have now had some experience, and think we had better keep our course, viz., reply to all inquiries, and give the plainest directions possible.—Ed.]

Mulbarton, Norwich, July 16th, 1879.—'I have had a sight at home in my glass hive that I did not expect to see. In the autumn of last year, we added three lots to those already there; but they did not appear to work so well as the others, and have not now filled all the hive with comb. I have, however, had two swarms from it. On the 11th of this month I was looking at the bees, and presently a queen came and called. "I should say, she appeared to look very red." I found that every other time of her coming, she stopped on a queen's cell; and on the 12th, she came out. I had her taken from the swarm to see if it was the same; and I believe it was. On the 13th another was seen; and to-day (16th) I have seen one on the right side of the hive. Towards the south, I see four or five queen-cells; two, if not three, are now empty. I am now waiting the result. Had they been in a bar-frame, I could have done as directed in the July number of *B. B. J.*'—James Turner.

Fore Street Hill, Kingsbridge, Devon, July 17th, 1879.—'Enclosed please receive cash for *Cook's Manual of the Apiary*. So far as I have looked into it, I think it is a delightful book. In July number of "ours" the description and cut of the wire-work for bees to cluster on, to take off the strain on the full-sized foundation sheets, greatly takes my fancy; but it is not quite clear to me whether every other frame is first treated thus; and when the sheets are worked out (partly), the wire is removed, and the intermediate wax foundation dropped down in their places, or whether all the frames are at once put in their position, with the wire between each. I fancy it is the latter plan which is adopted. I like the idea of comb-dummies much, also the strips to close space between frames at the sides. Wretched weather for bees; worst season for thirty years.'—George Fox.

[The frames are intended to be fitted in their places, each filled with wax-sheet, except a quarter inch round sides and bottom, and the wire or thin wood is intended to hang between the sheets to relieve them of the weight of the bees. It is a very useful invention, being effective.—Ed.]

4 *Clonciffe Terrace East, Clonciffe Road, Dublin, 23rd July*, 1879.—*Irish Bee-keepers' Association.*—'How does the movement to start an Irish Bee-keepers' Association go on? Although only an amateur, I shall be very glad to join, provided the subscription is not more than 10*s.*, or 1*l.* at most. I fear, however, that we have not sufficient talent (so far as numbers go) on this side of the water to form a really strong society.'—R. S.

[There is plenty of local talent, if only some one would make a plucky start. Get a few guarantors of a pound each to prevent large individual loss, call a meeting, and do something. If you are willing to subscribe 20*s.* per annum, take four shares at 5*s.* each, and persuade others to do likewise. Nothing can be done without an energetic pusher; and thankful we are that in our B. B. K. A. we have the right man in the right place. If you can do nothing else, arrange for a show of manipulation, and make the place ring with wonderment, an association will soon follow upon that.—Ed.]

Wexford, Ireland, July 23rd, 1879.—'All over with bees here. Stocks and swarms—very few—all dead. He must, indeed, be a bee-keeper that will have any alive at all. Did you ever hear of swarms in August? Awful weather.'—Zulu.

Nottingham, July 24th.—'Our bees are in a poor way here. Feeding has been necessary all the summer (?). I left off feeding one of my stocks a few days ago, and the result was, that they began to cast out white bees and drones. I am told, that up to the present week we have only had twelve days without rain during the whole of this year, a statement I can well believe. I see some of your correspondents say they have had more swarms this season than they knew what to do with. That is not our case in this district, as I know several bee-keepers who have had no swarms at all. We are to have a show at Nottingham during the first week in September; but, as far as honey is concerned, I should imagine the exhibits would be *nil*.'—W. S.

Much Hadham.—Combination Hive.—'I am very pleased with my two Combination hives, and they are both progressing capitally, and are filling well at the back, besides a super over the front.'

'I desire to express my extreme gratification at the practical lessons given under the auspices of the Bee-keepers' Association during the Agricultural Show, and my great regret that your junior, through no fault of his own, failed in the contest on Wednesday. At the same time, I think it was somewhat unfair that the judges, after quietly finishing their own cigars within the ring, should give orders to the spectators to put out theirs, and so deprive them of the only whiffs of comfort to be had on that most uncomfortable day.'—Fitzroy Square.

Newton Kyme, near Tadcaster.—'Weather here fearful. Drones killed in most of the hives; and, I conclude, owing to their death and the temperature of the weather, the bees in several hives have left the brood-comb, and the young bees are dying in their cells, or hatching imperfectly. I commenced the year with twenty-one hives, and have now twenty-two; and if mine are in such a state that have not swarmed, what must be the state of those who have, and their swarms? And I question, whatever the weather may be, whether it will be possible for sufficient honey to be collected to carry them through next winter.'—J. Chaloner.

Inverness.—'I enclose P. O. O. for my *B. B. J.* I find it the greatest help, as my knowledge has all to be learnt by experience, there being no one in this locality who has any idea of frame-hives and their management that I can refer to. Our weather in the north is most disheartening, such cold winds and deluges of rain. I do not think the bees have had above two, or most three, entire days that they could be outside for nearly two months; and, I am sure, a great many are lost when out, from the high winds that have prevailed. There is hardly any honey in any of my hives, and I am constantly feeding, when continued bad days follow each other, as the hives are so full of brood and young bees I fear they would starve. A Stewarton, a very strong hive, on which I put a honey-box a month ago, during two or three fine days, was immediately taken to, and the comb began to be visible at the window very quickly; but for a week or two, though crowded with bees, I see no progress, and on 11th and 12th, last week, they turned out all the drones. There has been a field of wild mustard close to the garden, and also gorse and broom, in bloom, and yet they have hardly had a day they could stir abroad from rain. I have not had a swarm, and have only heard of one in this neighbourhood.'

Pitlochry, Dundarach.—'Desiring to inform you of my experience and success with my bees, I am glad to say that I have succeeded well in introducing the queen you

sent me on the 18th of June. As soon as I liberated her the poor drones caught it. Black and white were despatched, although I had a feeding-bottle on. They (the bees) saw that gentlemen were not required by the queen then. By lifting a frame two days later I saw the queen quite at home and laying two eggs in some cells. I am quite agreed with your correspondent who mentioned in the last *Journal* that the introducing of Ligurian queens and comb foundations is of the greatest importance to the success of bee-keeping. In 1877 I received two Ligurian queens, one of which was killed during the first night of release through my own fault. From your one I got the first crosses, and through the kindness of Mr. W. Raitt, of Blairgowrie, I received a sample of his comb-foundations. I got 1 lb. on trial. Very little, however, was used during the summer in question, so that I had enough over for the summer of 1878, and the result I might repeat again. From three stocks I had 223 lbs. of super honey, and of cut comb and run honey 147 lbs.; total, 370 lbs. For comparison's sake I might go back to 1876. It was a good summer, as everybody knows; but I had only 90 lbs. super honey, total 268 lbs.—the produce of four stocks. It will be seen at a glance what one Ligurian queen and 1 lb. of comb-foundation did for me. Well, out of real gratitude I do say that you and Mr. Raitt are real public benefactors, in bringing forth many things indispensable to the benefit of the public, and within easy reach of every bee-keeper. This summer here has every appearance of 1877; but to those who persevere and do not neglect their bees another 1878 will be sure to follow. The weather changed here for the worse on the 21st June, and has ever since been wet and cold. I had a bit of fun about a fortnight ago, upon visiting one of my neighbour bee-keepers. He remarked that his bees were busy killing their drones and young bees, and asked my advice on the subject. Of course, as it was all through scarcity of food, I simply advised him to feed them. A week having intervened, I again was passing, and observed two swarms in the garden, which, as he informed me, he had drummed off. I said, "Man, you have done very wrong;" upon which he replied that he was sure they had been slaying on account of the want of room. Another old friend of mine received a bar-frame in a present, but was not willing to stock it. Upon my urging him, he however consented, desiring me to fasten comb-foundations for him, which I gladly did. After this he remarked, in a simple enough style, that his bees never saw such a thing before, and perhaps they would not know what to do with it. The same old gentleman remarked to me a few years ago that it was a bad plan to feed in the spring, as it created maggots in the hive.'—VALERIAN NOVITZKY.

Queries and Replies.

QUERY No. 321.—I should be glad if you would say in the next number of the *Journal* the cause of my bees behaving as they have done the last few days. The hive is one of your Standards, and the bees a last year's swarm—now very strong. They have not swarmed this year. I put super over half the hive, June 28th, and they began to work it July 7th, and have filled it with comb and some unsealed honey, except the two end sections. Put another super on other half the hive, July 17th, and bees began on it at once, and are working two sections. Last Friday and Saturday, two fine hot days, and plenty of honey about from bean-field and clover close at hand. The last three days very wet, and on the first of the wet days noticed bees dragging out white bees; they have continued to do so ever since, till I should think they have brought out as many as would fill a pint pot. Have opened the hive to-day, but find it to all appearance all right with unsealed honey and sealed brood in all the bars. I send you a few of the bees thrown out for you to see. Do you think they are only drone-brood that the bees are destroying, or do you think there is anything wrong? Here are lots of empty cells, so it cannot be that the bees are in want of room to store honey.—H. T. U., *Sharman's Cross, Solihull, near Birmingham, July* 23, 1879.

REPLY TO QUERY No. 321.—It is not the quantity of honey in the cells that governs the actions of bees in such cases, but the suspension of its incoming. The bees sent are immature drones.—ED.

QUERY No. 322.—*Transferring.*—As I have had no chance to put a swarm into a bar-frame hive, I want to transfer one from a straw skep into it, and a week or two after unite two or more colonies of driven bees to them. The bees have been in the skep two years and are very strong—in fact, all my bees are strong, through my putting supers on to prevent swarming—but I am sorry to say the little honey which they had in them about a month ago, is now all gone? Please say when is the best time to transfer them, now or in the autumn? and if I am right in uniting as above: also, which is the best way to unite in a frame hive? I have the 'Leaflet' on transferring, but could get none on uniting. I can have plenty of bees here in the autumn for the trouble of driving them, if I knew how to keep them through the winter.—W. J. G.

REPLY TO QUERY No. 322.—We would advise that you keep the bees as they are during the month of August, for it is by no means certain that there will not yet be a honey harvest. The weather here is just such as the Americans had previously enjoyed: but now they are subject to 120° Fahr. in the shade. Let us hope that the heat wave may pay us a visit, and restore our equanimity, late though it be. We would transfer about the second week in September, and put all the brood available into the bar-frame hive, then feed gently until the stock becomes heavy and strong enough for wintering. Uniting was fully described in late Nos. of *Journal*. (See February last, p. 185.)

QUERY No. 323.—Would you please say in next *Journal* what I should do with an Abbott No. 1 Hive which has the combs built across the bar-frames? Can I drive the bees out and straighten them?—A BATHGATE, *Fairfield, 14th July*, 1879.

REPLY TO QUERY No. 323.—It would be easier, after having smoked the bees from the top to lift out all the frames *en masse* and carry them a few yards away; then cut out the combs singly, and having brushed the bees back into their hive, tie the comb separately into the frames, taking care not to injure the queen. It is singular that the bees left their guides and built across the hive; some of our would-be clever bee-masters think such a course highly unnatural, and of course the bees must be very naughty.—ED.

NOTICES TO CORRESPONDENTS & INQUIRERS.

AMATEUR, *Darlington.*—The Woodbury hive is 14½ inches square inside, and 8½ deep. The Standard is 17 inches from front to rear at top, and 16¼ at bottom, and is one and a half times as many inches wide, as there are frames in it. Now that comb foundation is so cheap, it is scarcely worth while to trouble with the old foundation plates. It is impossible for us to tell you the cost of carriage of a hive from London to Darlington.

LOCH GAVICK, *Rothesay.*—Cardboard would do in winter to form a division-board or dummy, and crumpled paper, or paper cuttings, would do very well above a quilt to prevent escape of heat; but if placed where the bees can get to them during their time of activity, they will tear them to tatters, and waste a deal of strength and labour. The back numbers of the *Journal*

may possibly be obtained by advertising for them. Kindly state which numbers you require.

OLD EDINBURGH ROAD, *Inverness.*—In such a very bad season it would not be wise to risk the life of the Ligurian queen that is doing so well, with the almost certainty that any young queens raised by her progeny would be lost in their first flight. We would give the pugnacious bees another comb of young brood. Perhaps they have lost their queen, and that is the reason they have not increased their comb-building. Queen-raising should take place in warm weather, when there is little risk of the queens being stunted in their growth or lost on their wedding trip. Our correspondent, a lady, is anxious to gain assistance from any bee-keeper in the vicinity who can help her; and if any there be who are willing, we shall only be too glad to effect an introduction.

FEEDING.—*Bishops Waltham.*—Never feed your bees upon honey; sugar syrup is cheaper by far, and it can always be relied upon as being free from the elements, or germs of disease, which cannot be certainly said of honey, it being so liable to change.

V. E. H., *Hull.*—A queen should reach the address named within 24 hours. As they cannot be kept on hand for any length of time, the Ligurianising should be delayed until inquiry has satisfied you that a queen will be quickly forthcoming. There is no leaflet on the subject of queen imprisonment. Usually they will live in their boxes until all the bees have died of starvation or old age. We have always advocated the breeding of bees as fast as possible, to be in readiness for the honey harvest, whose coming is usually known. When it comes, the bees ought to be busy gathering it instead of nursing young brood.

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION,

INSTITUTED OCTOBER 1875.

President: The Right Rev. the Bishop Suffragan of Nottingham.

(Postponed from September 17th and 18th.)

THE ASSOCIATION will hold their FOURTH GREAT ANNUAL EXHIBITION of HONEY, BEES, HIVES, &c., and PRACTICAL APIARIAN MANIPULATIONS, in conjunction with the LONG SUTTON AGRICULTURAL SOCIETY'S SHOW, at Long Sutton, on Wednesday and Thursday, October 8th and 9th, 1879.

Entry Forms and Schedules may be had of R. R. GODFREY, Grantham, Hon. Secretary of the Lincolnshire Bee-keepers' Association; or

J. W. SWAIN, Long Sutton, Secretary of the Long Sutton Agricultural Society.

EXHIBITION OF BEES, HIVES, HONEY, AND BEE MANIPULATIONS;

IN CONJUNCTION WITH

A FLOWER AND FRUIT SHOW,

AND AN

OPEN-AIR VOCAL AND INSTRUMENTAL CONCERT,

AT THE

BOTANICAL GARDENS, EDGBASTON, BIRMINGHAM,

FRIDAY and SATURDAY, AUGUST 8 and 9, 1879.

Shows open at 3 o'clock on Friday, and 9 on Saturday.

For Schedules of Prizes, Forms for Entry, and other information, apply, with Postage Stamp, to Mr. VILLIERS BLAKEMORE, Hon. Sec. of the Botanical Society, Birmingham.

ENTRIES CLOSE ON MONDAY, AUGUST 4th.

The Rev. H. R PEEL, Hon. Sec. of the British Bee-Keepers' Association, has kindly promised to lend the Bee Tent of the Association, and arrange for the Exhibitions of Driving, Transferring, making Artificial Swarms, and Capturing Queens.

The Gardens of the Society are 1½ *miles from the centre of the Town. Cab fare* 1s. 4*d. from the Railway Stations to the Gardens.*

ADMISSION EACH DAY ... ... ONE SHILLING.

Makers of Hives and Bee Furniture are informed that this will afford them one of the best possible opportunities for introducing their manufactures to the Residents of North Warwickshire, East Worcestershire, and South Staffordshire. fo. 34

NOTTINGHAM AND NOTTS BEE-[illegible]. ASSOCIATION.

THE ASSOCIATION will hold their EXHIBITIONS of [illegible]ONEY, BEES, HIVES, &c., and PRACTICAL APIARIAN MANIPULATIONS, during 1879, in the Arboretum, on Friday and Saturday, September 5th and 6th.

Classes 1 to 8 open to all England. Classes 9, 10, 11, 12, 13, and the Honey Fair, open to Members of the Nottingham & Notts Association, and other residents in the County of Notts.

SCHEDULE OF PRIZES.

Class. BEES.

1.—For the best Stock of Ligurian or any other Foreign Bees. 20/0 10/0 5/0

2.—For the best Stock of English Bees. 20/0 10/0 5/0

The Bees to be exhibited living with their Queen in Observatory Hives.

HIVES, &c.

3.—For the best and most complete Hive on the moveable comb principle, to include covering, stand, floor-board, and facilities for storing surplus honey. 20/0 10/0 5/0

4.—For the best complete Hive on the moveable comb principle for Cottager's use, to include cover, floor-board, and facilities for storing surplus honey. Price not to exceed 10/0. 20/0 10/0 5/0

5.—For the best Straw Hive on the moveable comb principle. 15/0 7/6 5/0

6.—For the best and neatest Supers for producing honey in the comb in the most attractive and saleable form. 7/6 5/0 2/6

7.—For the best Honey Extractor, calculated to meet the wants of Cottagers. 20/0 10/0 5/0

8.—For the best and most complete Collection of Hives and Bee Furniture; no two articles to be alike. 20/0 10/0 5/0

All Hives, etc., in the above Classes, to be made or Designed by the Exhibitor.

HONEY.

All Honey to be Judged according to Quality and Purity, being the produce of 1879, and gathered by the Exhibitor's own Bees in the Natural way.

9.—For the best Exhibition of Honey in Supers, or Sections of Supers, separable, and each not more than 2 lbs. in weight; the total weight of each entry to be not less than 10 lbs. 10/0 7/6 5/0 2/6

10.—For the best Single Section in the Comb, weighing not more than 3 lbs. 7/6 5/0 2/6

11.—For the best Exhibition of Pure Extracted Honey in Glass Jars, not to exceed 2 lbs. each; each entry to consist of not less than eight jars. 10/0 7/6 5/0 2/6

Bar-frame Hives will be given as Special Prizes for the best Exhibit made by *bona fide* Cottagers in Classes 9, 10, and 11; the Exhibitor being a Member of the Notts Association.

Class. HONEY—*continued.*

12.—For the best Exhibition of Honey in the Comb, taken from one Hive without destroying the Bees. Open to all *bona fide* Cottagers residing in Nottinghamshire. (No entrance fee). 7/6 5/0 2/6

DRIVING COMPETITION.

13.—For the Competitor who shall in the neatest, quickest, and most complete manner, drive out the Bees from a Straw Skep, capture and exhibit the Queen. Each Competitor to provide his own Bees. 20/0 10/0 5/0

The system of Open Driving shall be adopted, the Receiving Hive to be inclined at such an angle as shall permit the passage of the Bees to be seen by the Spectators. Veils and gloves may be worn by the Competitors. Members of the 'Notts Bee-keepers' Association' will be admitted to the Bee Tent to witness the Driving Competitions on production of their Member's Ticket. An Admission Fee of 6*d.* each for the two first displays, and of 3*d.* each to all subsequent displays, will be charged to Non-Members. These Competitions will commence at the Arboretum, at 2 o'clock in the afternoon of each day.

HONEY FAIR.

14.—A distinct Counter will be appropriated at the Show for the Sale of Honey in the Comb and in Glass Jars, and in this department Sales will be permitted, and Goods delivered at all times during the Show. Invoices must be sent with each consignment of Goods, stating the prices and weights of the various Supers, Glasses, &c.

The Association will provide Salesmen, but will not undertake to break bulk, nor allow it to be done.

The British Bee-keepers' Association offer a Silver Medal, Bronze Medal, and Certificate, to the three Exhibitors (being Members of the Nottingham and Notts Association), to whom shall have been awarded the three largest amounts of Prize Money in Classes 9, 10, and 11.

Further particulars may be obtained of

Mr. W. C. CHESHIRE,

Gelding, Notts.

FOR SALE.

FIFTEEN HIVES of BEES, mostly in Bar-frame Hives and Cottage Covers; several Empty HIVES, STEELE'S SLINGER, VEIL, GLOVES, KNIFE, &c., 20*l.* the lot. They are very cheap, as there is a good Crop of Honey, and the Hives have not been opened this year. The owner is moving into London. To be seen at Wye Cottage, Lion Road, Bexley Heath.

The COTTAGE, Eight Rooms, with Stabling, Greenhouse, and large Garden full of Fruit Trees, a most charming resort, to LET at the low rent of 55*l.* fo. 38

COMB FOUNDATION.—The best American, as per Abbott's Catalogue. RAITT'S FOUNDATION at his prices, from ABBOTT BROS., Fairlawn, Southall, Middlesex.

Bronze Medal awarded for Straw Skeps at the Great Crystal Palace Show, 1875.

Sixteenth Edition. Price One Shilling.

SEVENTY POUNDS A-YEAR:

HOW I MAKE IT BY MY BEES.

By the late J. W. PAGDEN.

Also, by the same Author, price Sixpence.

EARLY ARTIFICIAL BEE-SWARMING.

No watching required.

Apply to Mrs. J. W. PAGDEN, the Chestnuts, Alfriston, Sussex, by whom the same manufacturers of 'Economical Bee Furniture' are employed as formerly. fo. 23,

London: Printed by STRANGEWAYS & SONS, at their Printing Office, Tower Street, Upper St. Martin's Lane, in the Parish of St. Giles's-in-the-Fields, in the County of Middlesex; and Published for the Proprietor by KENT & Co., 23 Paternoster Row, in the same county.—July 31, 1879.

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 77. Vol. VII.] SEPTEMBER, 1879. [Published Monthly.]

Editorial, Notices, &c.

SEPTEMBER.

The past month has been one during which the weather has been most calamitous throughout the British Isles, and with it summer-time may be said to have passed away without a week of summer weather. The old story, of 'bees in May being worth loads of hay' has been bitterly fulfilled in this terrible year, and there are thousands of hay farmers who would give many loads of hay for a week or two of weather such as produces swarms of bees in May; but, alas! the fearful rain, hail, thunder, and wind-storms, have blighted the promise of the year, and well-nigh driven the country to despair. Here we are in the ninth month of the year with thousands of acres of grass (first crop) uncut, and many other thousands of acres where, though cut, the partly-made hay is under water.

Between Oxford and Banbury, as we witnessed in returning from Shrewsbury Show, the water covers the land for miles, and boats may be seen in the hay-fields (?), save the mark, the occupants apparently searching for the implements which they had been using when the floods overtook them. Pitiable, indeed, is the sight: waggons half-laden with hay, standing about the fields, the water covering their springs and nearly reaching the hay within them; hay-making machines almost submerged, hay-cocks sticking up through the water, or floating upon it, swarth and winrow covered and rotting; and, in several cases, whole ricks of the valuable fodder standing, as it were, in a sea, and spoiled to all intents and purposes. The effects of the weather are manifest, also, to a dreadful extent in all other outdoor industries and amusements; and Failure, like a flag half-mast high, recognised from afar, fills all around with despondency. How it will all end (?) is a question passing from lip to lip, and what will be the winter condition of thousands of families, human as well as apistical, can only be imagined with dread. It is fortunate, nevertheless—and the fact silvers the lining of the over-hanging cloud—that the necessaries for life, both for bees and humans, are cheap, and, therefore, one may hope that starvation, though impending, may be staved off at comparatively small cost while we are awaiting better times. From nearly all parts of the kingdom the story is the same: no honey, and the bees sure to die if not fed. In many instances, swarming has been prodigiously indulged in by the bees; in others, there have been no swarms at all. In the former, the bees have barely half filled their hives; and in the latter, they are simply bursting with bees. During a few days of fine weather in the middle of August, we used the extractor to good purpose, and got out a large quantity of honey; and we trust our readers, acting on our suggestion of last month, did the same in preference to trusting to the chances of obtaining supers. In our case, a large field containing abundance of white clover was allowed to stand uncut for near three weeks, through a squabble as to the charges for mowing it, or we may not have been so fortunate. The grass, however, was cut on the 12th to the 14th, and the rain has since baffled every attempt to get it together, even in the form of small hay, or what are more often called grass-cocks. Discussion on hay-making will, we trust, be pardoned by our readers; we have recorded the facts, that when the year 1879 is in future referred to as a bad honey year, it may be remembered as a bad year for agriculture generally; and that, although our readers may have much to deplore, there are many thousands who are far worse off than bee-keepers.

USEFUL HINTS.

Do not lose courage, things might have been worse.

Preserve the Caloric.—At the risk of being accounted tedious, we again say, do not give the heat generated by the bees a chance of escaping. Heat is life, and can only be gene-

rated by great wear and tear. Hinder the wear and tear by all means. This is not meant to be tautologous, but 'line upon line,' &c.

Twenty pounds of sugar will cost in these cheap times five shillings only, and that quantity will make about 30 lbs. of syrup. Who, in the face of such figures and facts, would let their bees starve?

A live dog is better than a dead lion, and one stock of bees next spring will be worth twenty dead lots in the present autumn, call them by what name you will. Dead lions do not nowadays get filled with honey; if they did there would soon be a scarcity of lions.

Queenless stocks at this time of year are, as a rule, broodless, and therefore, except for their weight in bees and comb, valueless — a pound weight of old bees, and a ditto of wax, in old comb; and in trying to save the latter, one may spend a shilling in coals, &c., for firing and labour, and realise eighteenpence for a pound of wax, and in trying to utilise the former, may spend the life and cost of half-a-dozen queens of all nations with a result —*nil.*

Old Bees.—These are in no way to be judged by the age of the hive they are in, nor for requeening purposes must they be adjudged young by the presence or absence of brood in a hatching state.

Drones.—Hives that contain drones at this season may, as a rule, be accounted queenless; and we should say useless, except for breeding purposes. Many disappointments arise in such cases, bee-keepers often preserve stocks containing beautiful drones to mate with late bred queens; but if they examine their queenless stock, in which the drones have been kept and nurtured, they will find them a mixture of all sorts, it being a fact that drones of other hives are welcomed to a hive in which, from the absence of a queen, their services are likely to be required.

Wasps.—'It is an ill wind that blows no one any good,' and, at least, bee-keepers can feel safe against depredations from wasps, which appear to have been nearly exterminated by the continued wet weather, as bees will be if not liberally fed.

Mice.—These pests should be well looked after, the wet drives them for shelter into hives, if they can be reached; and the bees get robbed of their means of living, and eaten up into the bargain. Mice, it would appear, consume a great quantity of comb, at any rate, they destroy it most unmercifully.

Dry Hives.—It is of vast importance that hives, floor-boards, and quilts should be kept dry. Skeps, particularly, should be examined, and their lower rims cleansed.

Bee-plants.—We have provided many thousands of seedling wallflower plants for next spring blooming. The weather of last winter killed off almost all our stock, and prevented growth in the survivors, and we suppose it was no kinder to other people. Those who wish for a supply, may have them for a shilling per hundred, either the dark red or dwarf yellow, and if only a dozen survive they will be value for money. Plantations of bee-flowering shrubs should be shortly made. A list of those for which Miss Rooke was awarded first prize at the South Kensington Show will be published in our next, and will doubtless prove useful.

Uniting Weak Stocks.—These should be united, without delay, to each other if practicable; but if not, then to those nearest to them. It will be better to have six strong ones, that will swarm in the spring, than twelve that may die in winter, or, if they survive, will not be strong until after swarming time next year.

Barley-sugar is the best winter food for bees. Many who do not care to trouble with syrup, may find this hint useful.

A RED-LETTER DAY.

Monday, July 28, will long be remembered by those whose happy privilege it was to be present at the assembly of bee-keepers—of all nations, we had nearly said—which took place on that day by the invitation of Mr. T. W. Cowan, at his mansion at Horsham.

The foreign guests present were Mr. T. G. Newman (Editor of the *American Bee Journal*, and President of the Bee-keepers' Convention), Mousieur Dennler (Editor of the *Alsacian Bee Journal*, Engheim, Alsace), Herr Gravenhorst (President of the Bee Section of the Brunswick Agricultural Society, Brunswick), Herr Estler (his relative), and Colonel Pearson (of Nancy, France). The ladies were Mrs. T. W. Cowan (the amiable hostess), Miss Cowan, and Miss Clement. The English bee-keepers present were Mr. T. W. Cowan (Chairman of the Committee of the British Bee-keepers' Association), Rev. H. R. Peel (Hon. Sec. to the same), Mr. C. N. Abbott (Editor of the *British Bee Journal*), Mr. R. R. Godfrey (Hon. Sec. of the Lincolnshire Bee-keepers' Association), Mr. W. N. Griffin (Hon. Sec. of the Devon and Exeter Bee-keepers' Association), Mr. J. M. Hooker (of Sevenoaks), Mr. F. Cheshire (of Acton), Mr. J. Hunter (of Ealing), Mr. J. P. Jackson (of Bull's Mill Apiary, Hertford), Mr. W. Carr (of Clayton Bridge, Newton Heath, Manchester), Rev. J. Lawson Sisson (of North Walsham), Mr. F. R. Jackson (of Slindon, Sussex), Rev. J. F. Hodgson (of Horsham), Mr. Hugh Clement (of Walberton), and the Rev. A. H. Scott (of Warnham).

The whole party, soon after arrival, sat down to an elegant luncheon, and kept up a lively hum of conversation—bees, as a matter of course, being the subject; and many were the experiences discussed, notes compared, and ideas exchanged for the general benefit.

The toast of the day was 'Our Foreign Visitors,' which was received with great applause, and the representative members were each presented by the Hon. Sec., Mr. Peel, with a silver medal as a souvenir of their visit to the British Bee-keepers' Association Shows at Kilburn and South Kensington. Responses were made, implying the pleasure which their visit had given them, by Mr. Newman in English, Mons. Dennler in French, and by Herr Gravenhorst in the German language.

Mr. Newman, on the suggestion offered by Mr. Abbott (see below), gave a most interesting account of the life, labours, and present condition of the Rev. Mr. Langstroth; and everyone felt that the good old man who had been such a benefactor to his fellow-creatures had been basely treated by some of them, and robbed of the just reward of his labour, leaving him in indigence in his old age.

An adjournment then took place to the apiary in the grounds, where there were on view bees of all kinds, in hives of nearly every pattern, but all in splendid condition, and gathering abundantly from phacelia and borage, of both of which there was a plentiful supply. Here, again, the buzz of conversation was well sustained, and hives invaded to wrest their secrets from the bees, and a most pleasant time was spent, and profitable withal. But the concluding feature gave perhaps most satisfaction; for a photographer had been engaged to take the group, and there was great fun while the imposing scene went on. Two or three sets were taken—volleys we ought to call them, for they all went off at once—to prevent possibility of failure; and after another half-hour with the bees and a little of the cup that cheers, &c., the visitors left for the railways, all declaring that they had spent a most delightful afternoon, giving three hearty cheers for their host and hostess and all their household.

THE PROPOSED LANGSTROTH FUND.

At the gathering of bee-keepers at Horsham on the 28th July, the Editor of the *British Bee Journal*, in referring to the above, said:—

'It has often been our honour and pleasure to exhibit before the world's notabilities the devotion of worker-bees to their queen, more particularly when she is in distress through long confinement, or impending poverty and starvation. We all know that in such case her faithful followers surrender their last drop of honied wealth for her sustenance, and willingly die rather than live to see her dead who gave them life, and hope, and energy. Such being the action of insects for their queen, what, may I ask, is our duty to our King,—the King of bee-masters, the Rev. L. L. Langstroth, whose mighty mind gave life, and hope, and energy to all bee-keepers by the production of the moveable-comb hive, coupled with his delightful work on the *Hive and Honey Bee*, thereby opening-up to the world the improved methods of bee-culture which have led to the enormous success the present time exhibits? What is our duty, may I ask, when we find this great father of our work reduced, in his old age, to comparative indigence? I do not suggest that it is our duty, nor is it expected of us, that we should all yield our last drop for his sustenance; but I do think it is the duty of the many who have benefited by his great brain-efforts, to make *some* sign in his behalf, and, like bees, add their honied drops until sufficient store has been provided to enable this good old man to pass the winter of his life in security, cheered by the feeling, that though there have been those, as there ever will be, brain vampires, who live on others' efforts and do their best to crush them, yet that there are honest and noble minds that appreciate the right, and are ever ready to do honour to profound intellect and inventive genius, such as are combined in the person of him in whose behalf this appeal is made in the hour of his need.'

Mr. Abbott thereupon proposed, and Mr. Cheshire seconded, and it was unanimously resolved, 'That the sentiment contained in the foregoing be approved, and that it be published in an early number of the *British Bee Journal*.'

The result has been the following subscriptions, which we earnestly hope will be considerably added to. In such a case, 'he that giveth quickly gives twice.'

Rev. H. R. Peel ..	...	... £1	1 0
T. W. Cowan, Esq.	...	... 1	1 0
Mr. C. N. Abbott	...	... 1	1 0
Walter Hewson, Esq.	...	... 1	1 0

CYPRIAN BEES—BUILDING UP STOCKS.

We were fortunate in being able to secure a Cyprian queen of pure breed, sent over from Germany to the Kilburn Show, by Mr. Julius Voigt, 'President of the Bee-keepers' Association at Bahn, in the province of Pomerania, in the kingdom of Prussia,' and believing her to be perfectly genuine, took the best means in our power to build up a stock of bees around her in such a way that she should incur the minimum of danger. She was in a box containing one piece of comb only, about eight inches by five, and there were with her perhaps 300 bees; and considering the wretched weather during the Show, and the drenching the little box had during the stormy time (for tent-canvas would not keep out the heavy rains), we were glad to find the queen alive afterwards, though her attendants were somewhat reduced in numbers.

Our first care was to warm them up and restore the life that was nearly gone from many of them, for which purpose they were placed

for a night in a second box over a kitchener, and were there thoroughly revived.*

Next morning we made a box (small hive) to hold eight frames of same size as that in the German box, and having filled one of the frames with comb containing hatching bees, and two others with empty comb, we carefully introduced both bees and queen to them; and when all were in (they were very few, and we could not afford to waste one) we covered up the frames, and slipped a piece of glass over the unoccupied part of the hive, so that the bees had an airing court into which they could pass, and take a short flight, if required. In two days some hundreds of the black bees given had hatched, and most comfortably agreed with the queen and the other bees; and to add to their number we gave two other full combs of hatching bees, in lieu of the empty combs, and restored their own comb of honey, which in the meantime we had unsealed. At the same time, to help them, we gave a small heap of barley-sugar in one back corner, and a heap of pea-flour in the other, and by the next morning both were cleared away and stored, the old Cyprians working well at them. By this time there were three or four thousand bees, with their queen; but singular to say, during the whole week that this was going on, not a bee had died, nor was there any attempt to get out through the glass. It appeared as if the old bees had been so long confined as to have become used to it, and as if the young ones had not been taught the necessity for flight. On the ninth day, when the young had nearly all hatched out, we took two full-sized Woodbury combs, nearly all sealed; and arranging them between two others containing a supply of honey, we put the bees and queen into them, and were gratified to find eggs and young larvæ in three of the combs in the nucleus they had vacated.

Having made our increasing colony snug, we quickly stocked the small hive with bees from another colony, and in a few days had queen-cells ready to transplant to other stocks. In the meantime the growing colony received other frames of brood from established stocks, and became itself one of the strongest in our possession: so strong, indeed, that on August 25th it had prepared to swarm, having raised three queen-cells, which were sealed, and which we quickly transplanted to nuclei. The queen-cells in the original nucleus, three in number, duly hatched, one being the most beautifully golden queen we ever beheld, the second much darker, and the third the smallest little wretch conceivable, being scarcely as large as a worker, and as black as an English drone. The last has departed, but the others are fertile, and will be built up as were their parent stock, trusting that they may live through the winter, and, if Dzierzon's theory be true (which we do not believe), breed pure Cyprian drones in the spring. These, with our Ligurians, which have been imported from various districts in Italy, may help to cross the breed; and we hope without loss of the beauty and gentleness which are the special qualities of both.

* We mention this because it is a most important matter. Many persons when they receive queens in boxes, are in such a hurry to get them into their hives, that they do not give them time to recover from the effect of a (possibly) cold journey; and thus, instead of leaving the queen to recruit with her own subjects, she is thrust amongst alien bees, very often benumbed and half starved. —Ed.

WINTERING.

After a profitless spring and summer, we have now in autumn but slight prospect of improvement in the condition of our colonies, and it will therefore be well to at once commence preparation for wintering them. How glibly the words run out from the pen, and how airily we all talk of preparing the bees for the troublous time in store for them; but how seldom do we begin in time to make our work successful. Our advice has hitherto been for bee-keepers to take the work in hand immediately on the close of the honey harvest; but as in this wretched year there has been no such harvest, and the probability of such has passed away, we earnestly exhort bee-keepers, in their own interest, to at once commence feeding their bees, as the only possible chance of saving them through the coming time, or if they, through lack of time or means, are unable to do so, then that they sell them or give them to others who will try to save them. Accounts come pouring upon us from all quarters, that unless the cottagers can be induced to feed their bees, which a vast majority refuse to do through ignorance or superstition, whole counties will be left beeless, and the busy hum of our favourites will, in a great measure, cease in the land. This is a very sad prospect, and one that should stir the hearts of those interested in the well-being of cottage apiaries, to leave no effort untried to preserve them. We have heaped line upon line, and precept upon precept, and, doubtless our labours, well supported as they have been by the various bee associations, have done great good; but there are thousands of cottage bee-keepers who have never heard of the *Bee Journal*, or of the many efforts that have been made in their behalf generally; or, if they have, it has been with an unwilling ear, and with no idea of acting on the counsels offered. And so it will come to pass, that acting on the lore and customs they have inherited from their ancestors,

they will destroy the major part of their hives because of their poverty, and allow the few they retain to perish of starvation during the winter, because they will not feed them sufficiently.

Surely the saving of so much valuable bee-life is worth an effort. There are few villages in our land that have not their various clubs, presided over by gentlemen of influence and position, who could almost command attention to so important a matter; and we hope it is only necessary to inform them of the grave necessity for their interference, to set them moving in the matter. Take the case of a cottager who has, say, six hives of bees, which, if examined at once, will be found with scarcely a pound of honey amongst them, but, as a rule, each crammed with bees, which they have continued to produce in the hope that the harvest would come; and it will be found that such cottager will condemn three or four of them to death, and will hope to keep the remainder alive by feeding them with a trough of elder wood, in which he will give them an ounce or two of beer and sugar occasionally, with a result after such a winterly summer which may be only too easily forecast.

Now, could someone but induce such cottager to feed his bees rationally, giving them, say, a pound's worth of sugar amongst them, and giving it in good time, the whole would, most probably, be saved, and next spring would be of considerable value; and out of such value the cost of the sugar could be *recouped*, and the joyful hum maintained. Surely there are plenty of large-hearted men who can see that the advance of a guinea or so for such a cause would be a twice, nay thrice, blessed charity; it would benefit the recipient beyond doubt, as it would be the means of preserving his property, it would benefit the community also on similar grounds, and in addition to the satisfaction attending so benevolent an act, the lender could be repaid in bees or honey, or the money arising from their sale, in the future.

Now after having, as we hope, induced those in position to lend a helping hand to their poorer neighbour, it is incumbent on us to show how their effort can be best applied, and this we purpose to do, as may be hereafter gathered.

Premising that the bees have been, by a gradual incoming of honey, induced to continue the increase of their number, stimulative, *i.e.* slow-feeding, will not be so absolutely necessary as it would be if breeding had gradually declined, through excessive storing, and the consequent prevention of oviposition, and therefore some of the precautions attending our principle of slow, or stimulative feeding, may be dispensed with, and the matter thus becomes a simple one.

We do not propose to go over old ground, and therefore refer new readers to our leaflet on Feeding (post-free one penny) for the formula by which bee food is prepared and administered.

But there are other considerations beyond feeding that require particular attention for safe wintering, to wit, dryness within and without the hive, perfect upward ventilation, without draught, a minimum of unsealed honey cells, plenty of sealed stores of both honey and pollen, the means of preventing loss of heat through circulation of air around frame ends (in frame-hives), limitation of entrance-way, absence of sunlight in entrance, plenty of sunshine on hive itself, absence of exciting causes, perfect rest, cleanliness, the means of passing through combs instead of being forced to go round them or die, through being unable to pass from an empty comb to one containing honey. Most of these considerations have been already brought before the world, and are accounted necessary, and we here repeat them by way of reminder only; but as regards the necessity for feeding bees, to preserve them for the good of the nation, we treat that as a primary subject, and exhort every one to use all possible influence to that end.

ABBOTT'S WOODEN FOUNDATION.

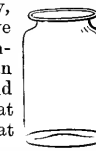
This, as exhibited at Edgbaston and Shrewsbury, at which latter place it was awarded a first prize, as a most useful invention, consisted simply of very thin board dipped in melted wax, on which the bees had raised their cells, and deposited in them brood, honey, and pollen. The boards were of a size to fill the frames, and the coating of wax was even all over them on both sides without corrugations of any kind, and the bees had to scoop out the wax and form the walls with it, leaving the cells flat-bottomed, and the wood clean and easily perceptible. This experiment is only the beginning of what we hope will, to a great extent, revolutionise bee-keeping, as we have learned by it that bees can be forced to act according to the will of man, and build combs that cannot break down, either in transit from vendor to purchaser, or on their way to the moors, or other places where honey may be found in abundance, nor can they well be broken while being used on the honey extractor. At first, the bees, a swarm of Ligurians, did not appear to relish the plain surfaces, and began to build crosswise from one to the other; but we cured that propensity by hanging between them other boards, about a twelfth of an inch thick, with no wax upon them, and then the bees began to act reasonably, and build as described. It will be perceived, that since bees will accept the flat-bottomed cells and the wooden foundation, it will not be necessary that the cells should be

so carefully constructed or placed as they must necessarily be when wax alone is used, and the bases of each form the point of intersection of three other walls on the other side of the comb, for these cell bases being all flat, and indestructible by the bees, they may be placed on both sides of the wood without reference to, or the necessity for, exactly corresponding with each each other; and, therefore, if the waxed boards be rolled between two cylinders, each studded with projections that will form the bases of correct size, the desideratum will be accomplished, and the foundation can be turned out wholesale by any novice who can dip the boards and turn the handle of—

Abbott's Proposed Foundation Machine.—Scarcely any one can pass along the streets of any large town without observing 'Wringing Machines' exposed at almost every hardware shop, such wringers being composed of two cylinders of beech-wood turned perfectly true, their spindles being fitted into an iron frame, and so arranged as to be easily fixed to the sides of a tub or upright board; and there is a spring arrangement above them that can be made to regulate the pressure of one cylinder against the other to any extent desirable, while a strong handle is attached to one of them that will set both in motion, and give any thing placed between them an awful squeeze. Now, we intend to take one of these 'wringers' and drive a few pounds of nails of proper size and shape, close together over as much of the surfaces of both cylinders as will be required, say 9 inches in width; and this, if nicely done, will give us a pair of rollers that will give the shape and make of worker cells sufficiently approximating to the natural (barring the shape of their bases) for the bees to adopt them, with the advantage of having thicker walls than is usual with foundation, for them to utilise. We are quite sanguine, that by this mode of procedure a serviceable 'machine' can be made, which will largely dispense with the expensive American production, with the advantage that any one who can drive a lot of nails can make his own. We are unwilling at all times to anticipate, preferring to prove the utility of things before giving them to the public; but as at sundry shows we have somewhat enlarged on this subject, we publish our idea in the hope that it may prevent some landshark from patenting it, and thus robbing bee-keepers of its value. Before our next issue, we hope to have a machine in operation, and then will give further experiences.

FIRST PRIZE HONEY JARS.

There has long been a difficulty, severely felt, in obtaining honey jars that, while of good appearance, should be almost costless, so as to be included in the price charged for the honey, or made the subject of a very slight additional charge. We had in former years ransacked every town in which we could hear of glassworks likely to suit our purpose, but were unable to obtain anything respectable that could be offered for less than 4*d.* each to hold one pound of honey or jam. Now, however, the case is altered, for we were able to exhibit at South Kensington one-pound jars which can be obtained at 15*s.* per gross, and two-pound jars that can be had at 18*s.* per gross, from the works at Birmingham.



By calculation it is found that these prices show the cost of the jars to be 1¼*d.* and 1½*d.* each, and some of our friends appear to suppose that we are bound by the terms of the prize offered to send them out in dozens, half-dozens, or pairs at those charges; but we beg to differ on the point. Our offer was at per gross, and that, as is well known, does not include cost of packing or liability for breakages; but we are quite willing to supply them retail, if those who wish for them will fetch them, or send package and packing material for them to be forwarded in. To expect us to make boxes (worth 1*s.*) to hold bottles (worth 9*d.*) is absurd. We have opened the way to a cheap market at a rate profitless to ourselves except the boon be appreciated and we gain *éclat* for disinterestedness.

FORTHCOMING SHOWS, 1879.

See also Engagements of British Bee-keepers' Bee Tent.

September 3*rd.*—Much Hadam, Ware, Herts.

4*th.*—Horsham, Sussex.

4*th*, 5*th*, 6*th.*—East of Scotland, Dundee. Hon. Sec., W. Raitt, Bee Croft, Blairgowrie, N. B.

5*th* and 6*th.*—Nottingham at the Arboretum.

9*th* and 10*th.*—Warwickshire at Atherstone.

12*th.*—Shifnal.

October 1*st* and 2*nd.*—Hertfordshire County Association, Hemel Hempstead, Rev. H. R. Peel, Hon. Sec., as above.

8*th* and 9*th.*—Lincolnshire Bee-keepers' Association, in connexion with the Long Sutton Agricultural Society. Hon. Sec., R. R. Godfrey, Watergate, Grantham.

ENGAGEMENTS FOR THE BEE-TENT FOR 1879.

Sep. 3.—Much Hadam Ware Cottage Garden Show.
Sep. 3.—Rickmansworth Flower Show.
Sep. 4.—Horsham Flower Show, Sussex.
Sep. 9 and 10.—Warwickshire Agricultural Show at Atherstone.
Sep. 11.—Harpenden Flower Show.
Oct. 1 and 2.—Hertfordshire County Bee-keepers' Show at Hemel Hempstead.

OFFICIAL REPORTS OF THE JUDGES OF THE SOUTH KENSINGTON SHOW.

REPORT OF THE JUDGES.

CLASS 1—HIVES (10 *Exhibits*).

What struck the Judges at once on entering upon their task with this class was, that a most perceptible onward movement had this year been made in a department of bee culture which had lain stagnant for many years. And this finding of theirs they felt fully authorised in making patent to all, by awarding an 'extra prize,' where in former years they have even had to withhold one or more of the prizes offered.

The first prize was unanimously adjudged to Mr. C. N. Abbott's Observatory hive. It commended itself at once by its simplicity of construction; the fact that it presents the entire hive of bees in its strictly normal condition for general observation, and retains it so up to the very moment when a partial separation of any of its component parts is required to be made for any special investigation; and that it appears to open out a field for very extensive development in the future, whereby many of the vexed questions in bee science may be partially, if not entirely, solved. The *principle* of this hive presents a new starting-point for vast improvements.

The beautifully made and contrived 'Baroness Observatory hive' of Mr. W. Freeman commanded the second prize, as furnishing the furthest stage of development to which the old principle of Observatory hive has, so far, arrived.

The hive of Mr. J. A. Abbott on the same old principle, but with many improvements, took the third prize; while the extra prize was offered to Mr. Cheshire for a hive of much ingenuity and clever contrivance, but, as yet crude in some of its adaptations and facilities for manipulation. Doubtless this hive will reappear much simplified in the hands of so scientific and practical a bee-master, marking in itself progress of ideas, and suggesting them to others.

CLASS 2 (16 EXHIBITS).

Mr. J. M. Hooker received first prize for his 'Improved Alexandra hive.' The improvements here are accompanied also with simplifications. The hive affords facilities for storing surplus honey in any *legitimate* direction, according to the fancy of the bee-master, or the apparent requirements of the bees, as varied by the season or the honey crop. Mr. Abbott obtained the second prize, and G. Neighbour & Sons the third. Almost all the hives shown in this class were really good, and either have been or might be prize-takers; and doubtless each one only needs a familiarity in practice to make it, to its own possessor and advocate, 'the best known hive.' It is a question, however, whether some of the hives were not made to aim at too much, and whether the inventors were not led into error on this point by the wording of the specified requirements for this class. The object seemed to be to catch all comers (and the prize) by combining every system, good or bad, in one hive, leaving a purchaser to chose any or all systems for practice in his apiary as he pleased. This is not educating the public mind, but confusing it, as to improved methods of bee-keeping; and prizes awarded on such terms endorse an appreciation of ingenuity rather than of what is practical and beneficial to the advancement of bee-culture.

CLASS 3 (15 EXHIBITS).

This is a class intended to serve eminently practical purposes, which were certainly met by 'the Cottagers' Myrtle hive,' with sectional supers and adapter, with other specified requirements, complete for 10*s.* 6*d.*, by Green & Sons, first prize; that of R. Steele, at 10*s.*, second prize; that of W. Hollands, at 9*s.* 6*d.*, third prize; and that of C. T. Abbott, at 10*s.* 6*d.*, highly commended.

CLASS 4 (4 EXHIBITS).

Messrs. G. Neighbour & Sons obtained the only prize given for an excellent straw hive with floor-board and super. Price 6*s.* complete.

SUPERS.

CLASS 5 (12 EXHIBITS).

Here in a special degree does economy in the units of price, material, space, and compactness of arrangement enter into computation, and the sets of sectional supers of Messrs. R. Steele, S. J. Baldwin, and G. Neighbour & Son, were judged to combine the chief excellence on these points, and received the first, second, and third prizes respectively, while the box super of W. Hollands gained high commendation.

The facts stated and opinions advanced in the foregoing report are approved by us,

JOHN D. GLENNIE,
WM. FREEMAN,
W. B. TEGETMEIER,
} Judges in Sections 1, 2, 3, 4, and 5.

Royal Horticultural Society's Gardens,
South Kensington, July 22, 1879.

THE CALEDONIAN APIARIAN AND ENTOMOLOGICAL SOCIETY'S SHOW AT PERTH.

The Caledonian Apiarian and Entomological Society held their annual exhibition on July 29, and the three following days. In accordance with a precedent inaugurated some few seasons ago, they chose the occasion of the Highland and Agricultural Society's show for their exhibition of hives, bees, honey, &c. The Highland and Agricultural Society have taken the sister show under their wing in a very kindly manner, for they have at once given a free site, voted a grant of 20*l.*, and offered a handsome silver medal for the driving competition.

The show yard, which occupied the South Inch of Perth, covered about forty acres, and was visited during the four days by many thousands of spectators. The Bee-tent was pitched in the north-west corner of the yard, where exhibitors found roomy and comfortable stands for their various exhibits.

The manipulation tent, belonging to the British Bee-keepers' Association, was a scene of great interest during the Show. It is of octagon shape, the operator standing in the middle, while the public feel secure under the protection of an intervening gauze screen. Driving bees from a straw skep, and transferring their combs to a bar-frame hive, were hourly operations, and never failed to strike with astonishment the spectators who stood aghast at seeing a human being, unprotected, turning up a hive of live bees and handling them as if they were blue flies. The following gentlemen conducted the manipulations during the different days:—Baillie Laughland, Kilmarnock; Messrs. Paterson, Struan; Anderson, Dalry: Hutcheson, Glasgow; Ellis, Bridge of Earn; and Wilkie, Gourock. Not a little excitement was created amongst the onlookers when Mrs. W. W. Young entered the ring alone and demonstrated to them that ladies were quite capable of performing the different operations connected with apiculture.

Passing along to the north-east corner of the grounds where are pitched the tents sacred to the bee, we find the centre of attraction to be the Observatory Hives. In this department there was a keen competition; and the first prize fell to Mr. Bryce Wilson, Newbury, whose hive, working somewhat on the old 'Huber' principle, was noticeable both for its ingenuity and beauty. The bars, seven in number, were of the Woodbury size, arranged in a row, and standing parallel to each other. These working on a pivot opened out like the leaves of a book, while the bees found their way to the main channel down the centre of the pivot. Mr. W.

W. Young came second with a six-bar Woodbury hive. In it the frames were arranged in two perpendicular rows, showing artificial comb-foundation in the various stages of extension up to the complete cell. The exhibit looked remarkably neat, enclosed, as it was, in a bower. Mr. J. D. Hutcheson, Glasgow, made an exceedingly good third; it being a matter of no small difficulty to adjudge the respective places merited by those excellent exhibits. A most interesting thing was elicited by the prize offered for the most artistic design wrought by the bees. Mr. W. W. Young, Perth, did himself an honour by the exhibition of the Perth arms—two spread-eagles with the word 'Perth' underneath, and wrought out in honey-comb; and the design received the attention and admiration it so well deserved. Mr. R. R. Godfrey, of Grantham, showed a beautiful collection of natural objects and diagrammic illustrations of apicultural subjects. Among the former was a curiosity in the shape of a wasp's nest found in a hive. The hives shown were numerous, and all of a superior kind, both as to workmanship and design; the bar-frames, indeed, were so fine a show as to awaken a hope that the old 'ruskie' and the barbarities too long associated with its use will speedily vanish. Mr. Wm. Thomson, High Blantyre, again exhibited his celebrated Lanarkshire Ne Plus Ultra Hive, a model of ingenuity, deserving the careful attention of all bee-keepers. Its complication rendered it, however, in the opinion of the judges, only worthy of the second prize; Mr. R. Steele, Foulis, carrying off the first. Mr. Thomson, however, came to the front in class 13, with his original Lanarkshire hive, which deservedly carried off the first honours; while his Renfrewshire-Stewarton hive attracted much attention. Mr. Steele's and Mr. Raitt's supers were on the American 2lb. system, while Mr. Young's was on the 1lb. principle with the possibility of alteration in several directions. There were only two competitors for the Society's Silver Cup, which was carried off by Mr. W. W. Young, for his collection of hives, bee-furniture, bee-gear, and apiculturist's necessaries. The collection included 135 articles, from a needle for fixing queen-cells up to a bar-frame hive. Mr. Steele's collection was inferior to the former only in point of extent. One of his exhibits was a machine for making artificial comb-foundation, along with a specimen of the work produced, which was of a high order. This machine, we may state, is, like many of our leading inventions, the product of American ingenuity; but the mechanical reputation of this country was so far sustained by Mr. Thomson, of Blantyre, who, although only a working joiner, has succeeded in imitating the American design, and in producing from his machine impress sheets that took the first place. The Paterson bar-frame feeder, improved by Mr. Young, is a capital thing. To both these gentlemen bee-keepers are much indebted, especially in a season like the present, when the bad weather has made feeding assume an abnormal importance. The straw hives showed a wonderfully good front. The first prize was carried off by V. Novitzky; it had a flat wooden top, with comb-foundation guides and spaces of ¼ inch cut in the top board for supering, an excellent idea, which all straw-hivists would do well to pick up. Mr. W. W. Young also exhibited in this class a manipulating table, which was, in the opinion of the judges, the best invention, but was only awarded second prize on account of being too expensive.

In class 25, for the best honey extractor, Mr. R. Steele carried off first prize, with a reproduction of A. J. Root's, of America, being his 20-inch Woodbury, with a strong wire mesh of about ¾ inch. The second prize was awarded to Mr. W. W. Young, who also exhibited a superior machine, somewhat after the same pattern; but instead of the comb being placed as it stands in the hive (as in the former one), it is placed on its end in a slanting position. Mr. Godfrey's collection of honey-producing plants was noticeable for its neatness, as was also Mr. Young's, wrought into the form of an arch, with a crown suspended from the centre, and a water-fountain beneath.

In the class for comestibles Mr. John Wilkie, Gourock, gained first prize with two samples of wine made from honey. In class 20, for the best sweetmeats, Mrs. Paterson, Struan, gained first prize with a jar of honey-balls and tablets. In class 21, for the best honey-cakes, Mr. Wm. Sword, Falkirk, gained first prize; while Mr. Angus Cameron, Blair Athol, came second; and Mr. W. W. Young, third. Mr. Wm. Thomson demonstrated to the visitors, at intervals, his chemical test for detecting spurious from genuine honey.

Mr. Thomas G. Newman, editor of the *American Bee Journal*, who is in this country at present collecting information relative to the state of apicultural science in Britain, was present during the first three days of the Show. He was sent by the American bee-keepers, has visited various parts of Europe, and is now on his way home to lay the materials he has gathered before the Convention which meets at Chicago in September. Mr. Newman gave two addresses on the American system of bee-keeping, which were very interesting and were well received. The Society presented to him a medal as a souvenir of his visit to this country, and for the valuable services he has rendered to the present session of the Society.

The driving competition for the Highland and Agricultural Society's Silver Medal took place on the last day of the Show, in the manipulating tent. The end aimed at was to drive the bees of a straw skep from their combs, and to capture and exhibit the queen. The points taken into consideration by the judges were quickness, neatness, and cleanliness. There were nine entries, and after a keen contest it was found that the prize fell to the lot of Mr. John Wilkie, Gourock, who captured the queen in transit in eight minutes, and finished the driving in three minutes more. Mr. Wm. Raitt, Blairgowrie, came second, having taken thirteen minutes to capture the queen, she having passed into the empty hive along with the bees without being detected.

The judges were, for exhibits—Messrs. James Anderson, Dalry; Alexander Shearer, Yester Gardens, Haddington; and Baillie Laughland, Kilmarnock; and for the driving competition—Messrs. J. Ellis, Bridge of Earn; and R. Steele, Fowlis *viâ* Dundee.

With the exception of Thursday, when rain fell abundantly, the weather was fine, and from morning till night, throughout the week, the bee-tent was a scene of activity, both on the part of the bees and of the thousands who came to see them. The floral decorations of the tent were executed in a very tasteful style by Mr. MacGregor, a member of the Perthshire Apiarian Society.

Altogether, the Show was a great success, the credit of which is due to Mr. W. W. Young, whose painstaking labours, during the past six weeks, have been very great; and also to the Managers, assisted by the able Secretary, Mr. Bennett, and the Acting Committee.

PRIZE LIST.

Clover or Flower Honey.—Class 1—For the two best supers above 20 lbs. each: No entries. Class 2—For the best super above 20 lbs.: No entries. Class 3—For the best filled and finished super above 10 lbs. and under 20 lbs.: No entries. Class 4—For the best sample of run or extracted honey, not less than 4 lbs.: 1st, Thomas Tennant, Ecclefechan; 2nd, Walter Thornburn, Ecclefechan. Class 5—For the best exhibition of pure honey in sectional supers, separable, and of not more than 4 lbs.; total weight of each entry to be not less than 20 lbs.: No awards. Class 6—For the best glass super above 10 lbs. weight: No awards. Class 7—Pret-

tiest design in honey-comb, worked by the bees: 1st, W. W. Young, Perth. Class 8—For the best exhibition of sectional supers in an attractive and saleable form, no section to be over 2 lbs.: No entries. Class 9—Special Prize, offered by Mr. J. Steele, hivemaker, Fowlis, Dundee, and the Rev. John Irvine, Innellan—For the best exhibition of pure honey in sectional supers, each section to be separable, and not more than 1 lb.; the total weight of each entry to be not less than 20 lbs.: No awards. Class 10—Special Prize, offered by Mr. R. J. Bennett and Mr. Wm. Sword—For the best exhibition of pure honey in sectional supers, each section to be separable, and not more than 3 lbs. each; total weight of each entry to be not less than 12 lbs.: 1st, Miss Watson, Inchture. Class 10½—Extra Prize, offered by Mr. W. W. Young and the Society—For the best table display, not less than 4 feet by 3 feet 6 inches, of pure honey and comb, the product of one apiary during 1879: No awards.

HIVES AND WAX.—Class 11—For the best hive for observation purposes, all combs to be visible on both sides, stocked with bees and their queen: 1st, Brice Wilson, Newbury; 2nd, W. W. Young; 3rd, John D. Hutcheson, Glasgow. Class 12—For the best and most perfect bar-frame hive, with super, or set of sectional supers, and cover complete: 1st, R. Steele, Fowlis; 2nd, Wm. Thomson, High Blantyre; 3rd, W. W. Young. Class 13—For the most perfect hive on the storifying principle, with the best arrangement for securing harvest of comb honey: 1st, Wm. Thomson; 2nd, R. Steele; 3rd, D. Paterson, Struan. Class 14—For the best straw hive of any description: 1st, V. Novitzky, Pitlochry; 2nd, Thomas Tennant. Class 15—For the two best samples of wax, in cakes of not less than 1 lb. each: 1st, R. Steele; 2nd, Wm. Raitt, Blairgowrie; 3rd, W. W. Young. Class 16—For the best sample of wax-guide sheets, not less than 6 sheets: 1st, Wm. Thomson; 2nd, Wm. Raitt; 3rd, W. W. Young. Class 17—For the best bar-frame hive on the moveable comb principle, with cover and stand complete, stocked with bees and their queen: 1st, W. W. Young; 2nd, John Ellis, Bridge of Earn.

COMESTIBLES.—Class 18—For the best liqueur or wine made from honey, with recipe attached: 1st, John Wilkie, Gourock. Class 19—For the best mead or beer made from Honey, with recipe attached: No entries. Class 20—For the best sweetmeats made with honey, with recipe attached: 1st, Mrs. Paterson, Struan. Class 21—For the best cakes made with honey, with recipe attached: 1st, Wm. Sword, Falkirk; 2nd, Angus Cameron, Blair Athol; 3rd, W. W. Young.

MISCELLANEOUS.—Class 22—For the best and largest collection of hives, bee furniture, bee gear, and apiculturists' necessaries, no two articles to be alike: 1st, W. W. Young; 2nd, R. Steele. Class 23—For the best bee feeder: 1st, W. W. Young. Class 24—For the cheapest, neatest, and best supers for producing honey Comb in a saleable form: 1st, R. Steele; 2nd, Wm. Raitt. Class 25—For the best honey extractor, cost to be taken into consideration: 1st, R. Steele; 2nd, W. W. Young. Class 26—For any new invention calculated in the opinion of the Judges to advance the culture of bees: 1st, Wm. Thomson; 2nd, W. W. Young. Class 27—For the best chemical or other test for detecting spurious from genuine honey: No entries. Class 28—For the best and most interesting collection of natural objects, models, or diagrams connected with apiculture, and illustrating the natural history and economy of the honey bee: 1st, R. R. Godfrey, Grantham. Class 29—For the best and largest display of honey-producing plants, in a dried state or otherwise, such plants to have a card attached, stating time of flowering, duration of bloom, and any other particulars calculated to be of interest to bee-keepers: 1st, R. R. Godfrey; 2nd, W. W. Young. Class 30—Driving competition, extending through the four days of the Show—For the competitor who, without assistance and without veil or gloves, shall in the neatest, quickest, and most complete manner drive out the bees from a straw skep of not less than 14 inches diameter, and capture and exhibit the queen: 1st, John Wilkie.

CALEDONIAN APIARIAN AND ENTOMOLOGICAL SOCIETY.

The business meeting of the Society took place on Thursday morning, Mr. John Wilkie in the chair, when the following gentlemen were nominated office-bearers for the forthcoming session. Present—Rev. Alex. R. Findlay, Messrs. Bennett, Cameron, Edwards, Ellis, Hutcheson, Johnstone, Laughland, Muir, McGregor, Paterson, Steele, Sword, Young, Wilkie, Wood, and Thomas G. Newman, of Chicago, America. The Secretary read the minutes of the last meeting, which were duly approved of. The following gentlemen were unanimously recommended:—Hon. President, the Right Hon. the Earl of Roseberry; President, Charles Howatson, Esq., of Dornal; Vice-Presidents, James Lumsden, Esq., of Arden, James Laughland, Esq., of Kilmarnock, and Rev. John Irving, of Innellan; Hon. Secretary and Treasurer, Robert J. Bennett, Glasgow.

The Chairman moved the first resolution, 'That it is incumbent upon all bee-keepers to lend their aid and influence in forming local societies to work in connexion with the Caledonian Apiarian and Entomological Society, for the purpose of encouraging the science of apiculture throughout Scotland.'

Mr. Bennett said he had much pleasure in seconding this motion; and he was sure all bee-keepers would be willing to assist to the best of their abilities. This had been a favourite theme of the chairman's for the last four years, and he had written a very able article in the *British Bee Journal* as far back as the 12th of March, 1875, and which appeared in the May number of the third volume. He advised all who had that number to peruse it at their leisure.

Mr. Sword moved the second resolution, 'That as the Perthshire Apiarian Society had been the first to take advantage of our offer of affiliation, any member who may wish to join our Society be admitted for 1*s.* 6*d.* per annum, and that we likewise award a silver and bronze medal for competition at their local show this year.'

Mr. Wood had much pleasure in seconding this motion.

Mr. Bennett moved the third resolution, 'That as the season has been so unpropitious as to prevent honey-gathering, the September show in connexion with the Glasgow Horticultural Society shall be abandoned for this year.'

Mr. Johnstone begged to second this resolution; while he regretted the cause, yet it was better not to appear, than not to make a good show.

Mr. Muir moved the fourth resolution, 'That as in a season like the present much spurious honey may be put into the market, all members should have their honey assorted and labelled by the Society's agents, showing both its quality and genuineness.'

Baillie Laughland had much pleasure in seconding this resolution, as the practice in imposing on the unwary public with sugar instead of honey-comb should be put down, and thus prove one great good the Society was doing.

Mr. Hutcheson said he had much pleasure in moving the fifth resolution, 'That our silver medal be presented to Thomas G. Newman, Esq., of Chicago, President of the North American Bee-keepers' Association, as a souvenir of his visit, and for the valuable services he has rendered to the Society.'

Mr. Paterson, in seconding this resolution, said he was sure every one present was greatly delighted with Mr. Newman's short stay amongst them.

A vote of thanks to the chairman brought the meeting to a close.

BIRMINGHAM BEE-SHOW.

Exhibition of Bees, Hives, Honey, and Driving Competition at the Birmingham Botanical and Horticultural Society's Gardens, Edgbaston, on August 8th and 9th, 1879.

The Judges, in reporting on the first exhibition of bees at Birmingham, have to congratulate the Society and their energetic honorary secretary, Mr. Villiers Blakemore, on the great success of their spirited undertaking. Each of the classes was well represented, except honey, which was very scarce, Mr. John Walton taking all the prizes for honey.

In Class A—For the best Observatory Hive, stocked with bees and their queen: all combs to be visible on both sides. First prize, 3*l.*, second prize, 2*l.*, were awarded to Messrs. Abbott.

In Class B—For the best hive on the moveable comb principle, complete with covering and stand, and with the best facilities for storing surplus honey. First prize, 2*l.*, was awarded to C. N. Abbott; second prize, 1*l.*, was awarded to R. Steele.

In Class C—For the best and cheapest hive for cottagers' use on the moveable comb principle, complete with cover, floor-board, and facilities for storing surplus honey. First prize, 1*l.*, was awarded to H. Fuggle; second prize, 10*s.*, was awarded to Green & Sons.

Messrs. Neighbour and Son were awarded an extra silver medal for their excellent collection of hives, bee-furniture, bee-gear, and bee-keepers' necessaries.

In Class I—For driving competition: for the competitor who shall, in the neatest, quickest, and most complete manner, drive out the bees from a straw skep, capture and exhibit the queen, and transfer both combs and bees into a hive on the moveable comb principle. First prize, 2*l.*, was awarded to C. N. Abbott, who drove the bees and captured the queen in 3 minutes 30 seconds, and transferred the combs and bees in 6 minutes 15 seconds: total, 9 minutes 45 seconds in driving and transferring, which is the shortest time ever accomplished at any driving and transferring competition. Second prize, 1*l.*, was awarded to John Walton, who drove the bees and captured the queen in 4 minutes 45 seconds, and transferred the combs and bees in 7 minntes 10 seconds: total, 11 minutes 55 seconds.

The Bee Tent was crowded at each competition on both days with a very attentive audience. Mr. F. Cheshire described the operations and lectured, and Mr. T. G. Newman of Chicago, editor of the old *American Bee Journal*, gave an address. On the second day upwards of 100 deaf and dumb from the Birmingham School were admitted to the Bee Tent free, and a stock of bees were driven, which was explained by Mr. Cheshire, and interpreted to the deaf and dumb by the head master of the school.

The receipts for admission to the Bee Tent on Friday were 15*l.* 4*s.*, and on Saturday, 15*l.* 17*s.* 3*d.*: total, 31*l.* 1*s.* 3*d.*, which was the largest amount ever received from the Bee Tent.

The Judges were Mr. William Carr, of Newton Heath, near Manchester, and the Rev. and Hon. C. Fielding, of Stapleton Rectory, Shrewsbury.

BEE SHOW AT PLYMOUTH.

The Devon and Exeter Bee-keepers' Association held their central show on the Hoe, Plymouth, in connexion with the Royal Western Horticultural Society, on the 19th and 20th August, 1879. Owing to the unfavourable season, the honey exhibits were not numerous; but eight well-filled sections of honey-comb were exhibited by W. N. Griffin, the hon. sec. There was a small display of run honey and a few entries of bees'-wax. W. N. Griffin was fortunate enough to be awarded the silver medal of the British Bee-keepers' Association, and he also carried off the cup offered by the Dawlish Bee Club. In the classes for open competition may be mentioned a handsome observatory hive stocked with bees belonging to the Secretary, and during the two days' show, crowds admired with great interest this novel feature. In the class for perfect bar-frame hives there were five entries, those most notable being a well-finished hive made by Mr. R. Steele, of Fowlis-by-Dundee, which obtained the first prize; also a hive exhibited by Mr. S. Baldwin, winner of the second prize. The improved Griffin hive took the third prize, and was much admired. There were six entries in the cheap bar-frame hive, Mr. R. Steele again coming to the front with a well-made hive, costing only 10*s.* In the class for straw hives Mr. W. N. Griffin was awarded first prize for a well-made, flat-top hive, straw super and floor-board complete for 4*s.* 10*d.*; the same exhibitor also took second prize for a smaller hive at 1*s.* 8*d.* There was a large collection of bee furniture. Mr. T. W. Cowan, of Horsham, exhibited the Amateur Rapid extractor, a most useful machine, which well deserved the first prize; Mr. G. Neighbour taking the second prize; and there were several other entries in this class. There were three cases of dried flowers exhibited by Miss Symons, of Hatt, which were tastefully arranged. Mr. S. Baldwin, the expert of the London society, conducted the manipulations; and, although nothing could be done the first day, owing to the heavy rain which fell incessantly, the second day the crowds of visitors partly compensated for the trouble and expense, and they eagerly watched with great interest the various operations in the manipulating yard.

There was a ready sale for the transferred bees. The attendance at the show on the two days was 1500. In the evening of the second day, the tent was lighted by gas, which gave a novel appearance, and enabled the exhibition to be kept open unti la late hour. The Secretary greatly regretted that Abbott Bros.' exhibits did not arrive, owing to an accident, as they would have been a great addition to the show. The judges were the Rev. W. Webster, Tiverton; Rev. P. Williams Rewe, Exeter; Rev. J. A. Kempe, Merton, North Devon; J. D. Pode, Esq., Ivybridge; and Major-General Saunders, Plympton. The following is the list of awards, for members only:—

Honey.—Class 2.—For the best exhibition of pure honey from one stock, in supers or sections of supers, separable, and each not more than 3 lbs. in weight, the total weight to be not less than 12 lbs.: First prize, 1*l.* 10*s.*, W. N. Griffin. Class 4—For the best sample of bees-wax, in cakes of not less than 1 lb.: First prize, 5*s.*, W. N. Griffin; second, 2*s.* 6*d.*, W. N. Griffin. Class 5—Offered by the Dawlish Bee Club, and to be competed for by those who were members of that Society during 1877. For the largest and best harvest of honey in the comb from one stock of bees, and gathered during the present year: First prize, a cup, W. N. Griffin. The silver medal of the British Bee-keepers' Association, offered for the best exhibit of supers, or sections of supers, of honey in comb produced in the most saleable form, was awarded to W. N. Griffin.

For Open Competition.—Hives—Class 9.—For the best Observatory Hive stocked with combs, bees, and their queen, in proper working order, all combs to be visible on both sides: First prize, 2*l.*, and first-class certificate, W. N. Griffin. Class 10—For the most perfect bar-frame hive, with covering and stand: First prize, 2*l.*, and first-class certificate, R. Steele; second, 1*l.*, and second-class certificate, S. Baldwin; third, 10*s.*, and certificate, W. N. Griffin. Class 11—For the best and most complete wood or straw hive on the moveable-comb principle, suitable for cottagers: First prize, 10*s.* and certificate, R. Steele; second, 5*s.* and certificate, S. Baldwin. Class 12—For the best straw hive for depriving purposes, cost to be taken into consideration:

First prize, 5*s.* and first-class certificate, W. N. Griffin; second, 2*s.* 6*d.*, and second-class certificate, W. N. Griffin.

MISCELLANEOUS.—Class 13—For the best and largest collection of hives, bee furniture, and apiculturists' necessaries, no two articles to be alike: First prize, 1*l.* and first-class certificate, W. N. Griffin. Class 14—For the best honey extractor: First prize, 1*l.* and first-class certificate, T. W. Cowan; Second, 10*s.*, and second-class certificate, G. Neighbour & Sons. Class 15—For the cheapest and best super for general use in an apiary: First prize, 5*s.*, and certificate, R. Steele. Class 16—For the best and largest display of British bee flora in a dried state or otherwise, each plant or specimen to have a card attached stating time of flowering, duration of bloom, and any other particulars calculated to be of interest to bee-keepers: Prize, 5*s.*, Miss Symons. Class 17—For any useful apparatus connected with bee-management calculated to be of real use in an apiary. Extra prizes were given. Green & Sons, for an improved bee-feeder; S. Baldwin, The Desideratum Smoker.

Many other prizes were offered, including three for cottagers, by Rev. Parker Smith, Messrs. G. Neighbour and Sons, and Mr. J. Lee; but they were not awarded.

CRAY VALLEY SHOW.

(*Communicated.*)

The first exhibition of the Cray Valley District Bee-keepers' Association was held in conjunction with that of the Cottagers' Horticultural Society on Thursday the 14th of August, in the grounds of W. May, Esq., Northfield, Orpington. The weather was all that could be desired; and in consequence, a numerous and fashionable company were attracted to the show. The *locale* was well chosen, and the kind hospitality of the owner was not the least pleasing incident of the afternoon. The Association entered upon its existence in October last, and, with one exception, it comprises novices only amongst its members. This, coupled with the fact of the very unkindly weather that has prevailed generally throughout the year, militated against a great success. However much interest was displayed, both in the exhibition of the various products as also in an especial degree in the manipulations conducted by Mr. Baldwin, whose fearlessness and genial disposition obtained for him great praise.

Mr. R. R. Godfrey, of Lincolnshire celebrity, kindly undertook the office of Judge; and it is needless to say, that his awards gave full satisfaction. To Mr. Skinner, a cottage member from Swanley, were awarded four first prizes and three second prizes. His exhibit in Class 1, for the best sectional supers, over 20 lbs. in weight, and not over 2 lbs. each, elicited high praise from the judge. Messrs. T. Packman, J. Stiles, and Waterman, also cottagers, were successful exhibitors in classes for sectional supers under 20 lbs., single sections, best super in wood, or wood and glass combined, best super of any description, run honey, &c. The Secretary and Mr. Hardy competed in Class 10, 'for the best specimen of run honey in most marketable form, not exceeding 2 lbs. in weight, the selling price to be quoted, exhibitor guaranteeing to supply any quantity of the vessels containing the honey at a price to be named.' The first prize was awarded to Mr. Garratt, whose exhibit consisted of a glass jar with lid, capable of holding 18 ozs. of honey, the price of which was quoted at 19*s.* per gross (a marvel of cheapness), whilst that of Mr. Hardy, who took second honours, also consisted of a glass jar, but without cover, holding 12 ozs. of honey, the price of the jar being 21*s.* per gross. The result of the show generally was a great encouragement to the committee; and it is not improbable that it may be emboldened to assume the wider designation of a County Association, to take which step it has been greatly encouraged by the Hon. Secretary of the British Bee-keepers' Association.

THE SHROPSHIRE BEE-KEEPERS' ASSOCIATION AT SHREWSBURY.

The annual exhibition of this society took place on the same days as that of the Horticultural Show, in a tent in the Quarry. The president of the society for the year is Viscount Hill, and the acting committee are the Rev. and Hon. C. W. A. Fielding, Rev. A. Corbett, Rev. E. D. Carr, Rev. R. E. Warren, R. Taylor, Esq., Mr. W. Phillips, and Mr. B. Harding.

The greater share of the labours of the day fell upon the Rev. and Hon. C. W. A. Fielding, who originated the society, and has since been its chief supporter. Mr. Lyon showed a bar-frame hive for cottagers made out of an old box with the simple tools—a knife and a hammer, and at the total cost of about a shilling. These hives result in a much more liberal supply of honey than straw hives, and this fact, with their cheapness, is a strong recommendation in favour of their introduction among cottagers. Mr. Frank Cheshire, of Acton, near London, gave a lecture on bees and their manipulation, and it attracted much notice, and afforded no small attention among those interested in bee management. The lecture was delivered in a newly-constructed tent with a passage around it, and the most timid of the audience was thus able to hear and see without the slightest alarm from an attack of the 'industrious labourer.' The judges were the Rev. J. D. Glennie, Croxton Vicarage, and Mr. J. Clevere Jones, Market Drayton. In Class 1, Ligurian bees, with queen, there was no entry, but the Rev. C. W. A. Fielding showed an observatory hive containing a ripe queen-bee's cell, which was not in competition.

The awards were as follows:—

BEES.—English bees, with queen, in observatory hive: 1st, 10*s.*, Isaac Lake, Criftens.

HIVES.—For the best and cheapest hive, on the moveable principle, in wood or straw, complete with covering for supers; any number to be supplied at price named; 1st, 1*l.*, Messrs. Abbott Brothers, Southall; 2nd, 10*s.*, Messrs. Abbott Brothers, Southall. For the best collection of hives and bee furniture, gear, and appliances, no two articles to be alike: 1st, 2*l.*, Messrs. Abbott Brothers. For any new and useful invention for the advancement of bee-keeping: 1st, 1*l.*, Messrs. Abbott Brothers. Application of wood for comb-foundations.

HONEY.—For the best exhibition of run or extracted honey, in glasses, from one apiary, the number of hives being taken into account: 1st, 1*l.*, Mr. B. Harding, Colehurst Manor, Market Drayton. For ditto from one hive: 1st, 1*l.*, Mr. B. Harding; 2nd, 15*s.*, Mr. B. Harding. For the best exhibition of honey-comb in any form from one apiary, the number being taken into account: 1st, 1*l.*, Mr. B. Harding; 2nd, 10*s.*, Mr. P. Day, Donnington Rectory. For ditto from one hive in bell-glasses, or glass and wood: 1st, 1*l.*, Mr. B. Harding.

OPEN TO COTTAGERS ONLY.

(Besides the foregoing.)—For the best exhibition of honey in comb, in any sort of super, from one hive, gathered by exhibitor's own bees in the natural way: 1st, 15*s.*, Mr. H. Powell; 2nd, 10*s.*, Mr. P. Fowler; 3rd, 7*s.* 6*d.*, Mrs. Mary Ellis. The classes for hives were open to all, the others being confined to the county of Salop. This department of the show ground was tolerably well patronised, but the mud which prevailed around the tent kept many outside. Still a general feeling was expressed by all who witnessed the exhibition that, considering the season, it was a great success.—*Shrewsbury Chronicle.*

[The weather during the show was grievous, and the ground was covered with several inches of mud of a creamy consistency. It was a novel sight to see the gude wives of the neighbourhood walk into the Severn and wash the skirts of their clothing (helping each other), rather than carry the slush with which they were bedraggled away with them.—ED.]

BEE SHOW AT HALBERTON, DEVON.

The Devon and Exeter Bee-Keepers' Association held an exhibition at Halberton, in connexion with the Cottage Garden Society, on the 8th of August, 1879. The tent was erected for the Bee Show, and the Secretary, Mr. W. N. Griffin, delivered a lecture on the natural history of the Bee, gave a description of the different hives now in use, and at intervals during the afternoon carried out various manipulations with living bees, showing the different operations—driving and transferring combs and bees from straw skeps to bar-frame hives. Much interest was shown by the visitors in the proceedings.

FIFESHIRE BEE ASSOCIATION.

POSTPONEMENT OF PROPOSED EXHIBITION.

In consequence of the extreme backwardness of the season, combined with a great scarcity of honey, the committee of the Fifeshire Bee Association have decided to have no exhibition and competition this year.

The committee desire meantime to return their best thanks to those who have been friendly to the formation of the association, and hope to be able, when the proper season returns, to give due notice of their arrangements. JOHN BLAIR, *Secretary, Markinch, 23rd August*, 1879.

HERTFORDSHIRE BEE-KEEPERS' ASSOCIATION.—COUNTY SHOW.

We beg to call the attention of our readers to the amended Schedule of this Show. Three extra classes have been added, which are open to all England and foreign competitors, in addition to Classes 1, 2, 3, 4, 5, 6, 7, 8. These classes are,—8A, For the best exhibition of honey in supers or sections and supers; Class 13A—Driving and transferring competition. Excellent prizes are offered for this competition, and we trust our great experts will compete for the liberal prizes offered. A honey fair, open to all England and foreign producers, is also to be held. The show will be held at Hemel Hempstead on October 1st and 2nd in the Bury Grounds adjoining the Drill Hall, where a large Poultry and Pigeon Show will take place during the two days. All entries to be sent to the Rev. H. R. Peel, Abbot's Hill, Hemel Hempstead, on or before September 20th. On the first day of the Show the driving competition will be confined to residents in Hertfordshire only, and the second day's competition will be open to all comers. See Class 13 and 13A.

DEATH OF SIR THOMAS MONCREIFFE, BART.

We regret to have to announce the death of Sir Thomas Moncreiffe, Bart. President of the recently formed Perthshire Apiarian Society, which took place at his residence, Moncreiffe House, Perthshire, on the 16th August. An ardent explorer in the various walks of nature from his earliest years, Sir Thomas has latterly devoted himself to the study of insect life, and has succeeded in gaining a position among the foremost entomologists of the day. His collection of the lepidoptera of the Moncreiffe estates forms one of the most complete local collections in the country. His death has cast a gloom over the county in which he was so much respected, and his loss will be long felt in the several scientific and benevolent societies with which he was connected.

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

THE LANGSTROTH MEMORIAL FUND.

At last, then, bee-keepers are awakening to a sense of duty. At last the dear old man, whose very name is music in the bee-keeper's ear, is to be recompensed in some measure (fully he never can be) for the service he has rendered to the world. And at last every bee-keeper will have an opportunity to pay some tribute to his great leader: for whether he knows it or not, every bee-keeper who uses moveable frames, whether in Abbott's, Lee's, Carr's, or any other form of hive, uses Langstroth's. Although I bought my first hive, with right to make, of J. H. Thomas, Brooklin, Ont., and did not then even know of Langstroth and his claim; when I did I found I was morally liable to him, and seeing this, I at once remitted to him his right. Brother bee-keepers, believe me that 2*l.* was not thrown away, for it fetched me over the Atlantic wave a letter full of kind words and good wishes, from Selina, his loving wife, which you may be sure I prize very much. This was in 1869.

In addition to subscriptions, could not his portrait be for sale at your office? I should be glad to purchase one for 5*s.*; 100 might be sold for that price: 25*l.* I know is no great sum, still it would help to swell the bulk which I hope is rising on both sides of the Atlantic.—WALTER HEWSON, *Wickham, Sandwich, Kent.*

P.S.—Please put me down for a guinea.—W. H.

[We should be glad to have a hundred or two of his photos. on sale on his behalf.—ED.]

YOUNG BEES FOR WINTER.—REQUEENING OLD BEES.

I am glad to be able to bear testimony to the useful advice you give in the pages of the *Journal*, especially on the point of rearing young brood for wintering. In pressing this advice to your readers, in August number of *Journal*, I can quite verify your statements. In the fall of last year, after using the extractor, my bees (half-breeds) became so irritable that it was necessary to remove them from their vicinity to the public road. Anticipating that a quantity of bees would return, I left one stock, a very weak one (pure Italian), for the lost bees to come to; it was a 12-bar-frame hive, full of comb. The day following the removal, a large quantity of bees came back. I tilted up the hive all round, and no opposition took place, and the hive became densely stocked. It was very late in the year, and breeding had stopped. Well, during the winter I was astounded to see the mortality in this hive; dead bees on the floor-board an inch thick every time I examined them. Now, note, all these were half-breeds; and—I was going to write in 'spring,

only it has not put in an appearance yet—however, in March not a single half-breed was left with the handful of pure Italians that I had hoped to benefit. This was a most striking proof of the utility of young bees for wintering. Another point was the advice you give upon the difficulty of requeening old bees. Last May, finding a hive very sluggish and idle, I looked for the queen; she was nowhere to be found, and no eggs whatever. A few days, and still no eggs, and not finding a queen, I gave them a black queen in cage and liberated her after two days, but never saw her more. I next caged a half-breed; they got her out the first day and killed her. I then took the rascals and well scented them with peppermint, and also a small stock of black bees with queen, which I joined to them together: and such a joining! it was war to the knife, and within ten minutes all the blacks were slain—queen and all—the victors raging over the combs in search of more enemies. I then gave them, after a few hours, several combs of brood; most of it they destroyed, and at last started some queen cells and went on all right.—W. Crisp, *Chester Le Street*.

QUEEN PIPING.

One day at the beginning of last month, while examining a super in one of my hives, I was much surprised to hear what I thought a queen piping. I accordingly listened attentively for a few seconds, when I again heard the well-known note from three sources. Now, this hive had not swarmed, the bees at the time were working well in two of Lee's Crystal Palace prize supers; and had they previously swarmed, I should have at once detected it by the supers. They threw off a first-rate swarm two days after, and a second swarm eight days after, the two remaining young queens piping incessantly the whole time till the issue of the second swarm. Thinking it strange to find this hive of bees acting thus, I went round to all the other hives, and I was not a little surprised to find two more in a similar state. One of them was a Ligurian hive, from which I made an artificial swarm in May last. The Ligurians swarmed three times in a week, the young queens, as in the other case, keeping up the usual note. I could detect three or four young queens in this hive piping at the same time. I united the two swarms of the three swarms in one hive each respectively. I was very sorry to have to sacrifice two young Ligurian queens, but there appeared no help for it. The third hive swarmed the day after I first heard the young queens; but they all returned within an hour. The young queens, however, kept on piping for another week, the weather preventing them from swarming. At last, a fine morning arrived, when they swarmed before 8 a.m. The piping then ceased, and they did not swarm again.

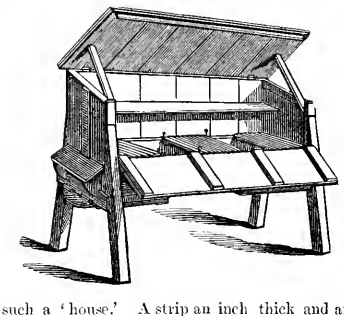
I am quite convinced that in neither of these three cases the bees had thrown a first swarm, as all three hives were working well in the supers, and, as I look every day, I should have at once noticed it. In two of the cases the old queens were two years old; the age of the Ligurian queen I don't know. I am at a loss to account for their death as I feel sure they must have died from some unknown cause. Can the unusual season we have had anything to do with it? I have been from home for a short time; and on my return, I find that two more of my hives, which had queens doing well when I left, are now queenless. Neither of these hives had swarmed this year. One of these hives had given me 30 lbs. of super honey; and I was excessively mortified to find the queen gone and no successor in her place, when I examined the hive after removing the supers.

I notice you draw attention to young queens being in many cases unfertilised this season. I have been, perhaps, singularly fortunate, as out of eleven hives in which I have young queens, I find in every case they have brood in all stages, thanks to your advice on stimulative feeding, as I have not ceased to feed gently all my swarms every day up to the present time; and most of the hives are now full of worker-comb and brood. My misfortune appears to have been with my old queens.—H. Russell Vincent, *Warminster*.

BUILDING A BEE-HOUSE.

I intend erecting a house for my bees; please state in your next *Journal* a general plan of a house to hold four hives, and the best way to do it. I use bar-frame hives.—J. R. T., *Thankerton, July 31st*, 1879.

[As a general rule, we should give the advice that *Punch* gave to those about to marry, and should say, 'don't' do it; but as you use bar-frame hives, there can be no harm in your making a trough, say twelve feet long, of a size that will contain the frames you use. We have in our mind the Abbott's Complete Apiary (so called), which figures on page 16 of Abbott Brothers' Catalogue for the present year; and from our experience with it, and from the good report we have had of it, we recommend it with confidence. Make a trough, or long hive, as before said, and make an entrance in front at each end, and two others, 2 feet, on either side of its centre. The engraving will give an idea of the building



of such a 'house.' A strip an inch thick and an inch and a half wide should be nailed, edgewise, along the bottom edge of the trough, just above the floor-board, and similar strips half an inch below the top edge, all round; and by boarding-up the front to any convenient height, and the back, as represented in the engraving, and giving a hanging roof and back as shown, and fixing alighting boards and porches to the entrances, a good, cheap 'house,' of the most serviceable kind, can be made. A gentleman at Southborough, writing of such a hive,

says: 'The bees are making honey very fast, some of the combs being filled. He takes this opportunity of saying that he is much pleased with his hive, and it has always been the means of affording many young people great delight.' This hive, trough, or nest of hives, is sub-divided by glass dummies or dividers, and thus gives all the advantages of windowed-hives without the usual expensive appurtenances; no shutters being required, since when the upper part is closed up, the glass is darkened, and the bees work undisturbed.—ED.]

QUEEN LOSSES.

I have been in Argyllshire for the last week or two, where I left one hive in spring under the care of the gardener. I found that it had swarmed, naturally, four times, and that he had made a nucleus; but, of the five queens, not one was present when I examined the hives. The last swarm had been off more than a fortnight. I started this spring with one hive here, and made an artificial swarm and a nucleus. The nucleus has now got a fertile worker, and the old one has lost its queen; so that of seven queens raised by my bees this year, every one has been lost on her wedding-trip. I have induced a friend in Mull to take to bar-frame hives. I find your Combination hive very convenient, and am making one or two to the pattern.—H. B., *Currie.*

MAIDEN SWARMS.—UNITING.—STRONG STOCKS.—OPENING HIVES.

I had a maiden swarm on Tuesday last, July 29th, from a swarm that was hived June 8th. I have united it to a cast, which was in a bar-frame of your make, which was hived on June 24th. This cast was not at all strong; but I gave them every advantage, by giving them three inches of foundation, and feeding them for some time. I had thought of adding some condemned bees to them in the autumn, but now I shall not require to do so, as the swarm which I have united to them is a very strong one, and the hive seems to be almost full of bees: so that, I think, I may possibly get some super honey this year. Is there any fear of making a stock too strong?

I cannot open my bar-frame and examine the frames without first driving some smoke in. When I was at your apiary your junior opened one of the hives and took a frame out without any smoke at all. Is it that the bees want training to it?

I united the swarm and stock according to the directions given in the February number of the *Journal.*—W. W. H., *July 31st.*

[In such a season as that of this year (taking it generally) the incoming of honey has, except in rare instances, been little more than sufficient to keep up the breeding propensity, which, as a rule, increases as the days lengthen; and in this instance, and probably in many others, in so exceptional a summer, the propensity has been kept up beyond the average time, as is evidenced by the maiden swarm having issued so late as the 29th July. Had it been our lot, we should have carefully overlooked the hive from which the bees issued, as it is possible it may have been left poorly off in bees and brood.

We wish every one would remember that 'Uniting' is described in February and later numbers of *Journal.*

A great deal has been written about the value of strong stocks; but they are, *as a matter of fact,* only specially valuable when there is work for them to do. Making stocks strong, at untoward times, when they are not likely to get a living for themselves, is like engaging haymakers in winter, or snow-heavers in summer, they must be kept without remunerative labour. There are lots of working men (?) whose professions, as suggested, do not dovetail with the time, and 'never having nothing to do,' but knowing they 'must be kept,' are a curse to the commonwealth.

We are inclined to believe that bees *do* become 'civilized' by gentle treatment, and we know full well that in hives which can be opened and examined without jarring or injury to them they make a minimum show of resentment. Further, there is a gentleness of character in some bees, over and above others. Pure Ligurians may, in some instances, be played with without the slightest apparent danger; but an accidental jarring may turn them into demons, and spoil their temper for a long time. We once had a pet stock, in a pet hive, standing under a cherry-tree; we examined it, showed it to all comers for many months, but once our bat, knocked off by a branch, fell on top of the frames, and it took us a long time to rub out the stings, and the bees were never so manageable afterwards.—ED.]

MR. RAITT ON THE LIMITED INCREASE OF BEES.

Will Mr. Raitt be kind enough to benefit the readers of the *Bee Journal* by describing more minutely what he means by allowing 'a certain limited amount of increase' in the matter of swarming? I quote from his article on bee management in the *Country,* July 25th.

The total prevention of swarming, as there described, presents most formidable difficulties to the learner.—KATE C. JAMES, *July 28th.*

ABNORMAL BEES.

Can you explain the following, and tell me how to prevent it? A Ligurian queen, at the end of April, laid eggs all right; but when the young bees hatched out they were very small, and either came out, or were turned out, directly they were hatched in such numbers that I actually thought, at first sight, that the box edging for a yard in front of the hive was dead, it was so brown from the little bees clustering on to it. After a time this ceased; but it has now commenced again. Yesterday I picked up 180 in the morning, and 78 in the evening, besides lots which I left on the ground. I turned them into the hive in the evening, and they have not been thrown out again. I send you a few; they are remarkably small. It occurred to me that the cells might be reduced from age, but they are last year's combs: so that is not the reason. It is not from starvation, as there is a lot of honey coming in; so much so that I am extracting, and the cells are filled and sealed every three or four days (not from this hive, it is too weak). I never experienced a similar case, and cannot understand it. The queen is not a very small one, although I have seen many larger.—'DR. PINE.'

[The bees sent were very little larger than house-flies. We cannot account for the peculiarity, though similar cases have been brought under notice. Very recently a hive of our own gave forth similar bees for a short time;

but they quickly disappeared. Is it possible that they are a distinct race, driven forth by stress of weather from their forest home to seek shelter, but find death at the hands of the Ligurians?—Ed.]

ABBOTT'S QUEEN EXCLUDER ZINC.

Will Mr. Abbott benefit the readers of the *Bee Journal* by giving them his experience of the use of the queen zinc perforated excluder to prevent her escape with a swarm, as this method of preventing the weakening of hives through swarming presents, apparently, less difficulties than Mr. Raitt's method for limiting the increase of the population of a hive?—Kate C. James.

[All we can say with regard to the zinc perforators is, that they are of dimensions that will permit worker-bees to pass readily, while they retain drones and queens unless they be very small ones; and such being the case, the material is useful as a means of preventing queens spoiling supers by charging them with brood, and that by interposing it between the brood-nest and the hive entrance, swarming can be hindered, if not altogether prevented. We have made no elaborate experiments in the direction suggested, and not having seen Mr. Raitt's article on the limitation of increase in bees, we cannot make comparisons on the subject. Our method is to cause the greatest possible increase in the population of a hive, having regard to time when a glut of honey is probable, so that there may be a vast number of bees to collect it. At the same time, to prevent swarming, which often takes place while supers are being filled, we would cage the queen, by confining her with sheets of the zinc to a certain number of brood-combs. Our experience has been, that the method is effectual, and that any drone enclosed with the queen, if he died, is dismembered and all his parts carried out of the hive except the thorax, which will not pass the zinc, but remains within, black and shiny as a jet bead. We once covered the bottom of a twelve-framed Woodbury hive with the zinc, letting a rim of wood run round it to keep it off the floor-board and allow the bees to pass under it; and we confined the queen to six frames of brood in front of the hive, giving the bees (a large population) a lot of sections at the back, fitted with foundation for them to work out. This they did most satisfactorily; but the weather did not permit them to store honey in them, though they did store some pollen in those next the brood-chamber, and this led to our placing a frame of empty comb on both sides of the queen's prison-house, outside the zinc, the one in front for the bees to use as a temporary storing-place for their honey, and the other at the back as a repository for pollen, which they prefer to place as near the brood-nest as possible. Some may smile at the idea of the comb in front; but the combination principle, involving the frames running parallel to the entrance, has taught us that bees store their newly-gathered honey in the nearest empty cells, and afterwards remove it to more convenient and secure quarters.—Ed.]

A PROLIFIC STOCK.

One of my Ligurian stocks gave me the first swarm on the 31st of May, a second on the 8th of June, and a third on the 10th. I placed a super on the hive on the morning of the 15th, and it threw off a fourth swarm on the 16th; all these swarms were large ones, except the fourth, which was good of its sort. The first swarm by the 15th of July had filled a Woodbury hive so full of comb, brood, and bees, that I put on a Crystal Palace super, so as to give more room, and prevent them from swarming, if possible. The extra room seemed to quiet them for a time; but on the 31st of July they gave me the largest swarm that I have taken this year, and so making up five swarms to the one stock, and all, I suppose, bred from one queen, besides keeping up the supply of the mother hives. Is this not rather unusual? The queen, I believe, is over three years old. All my bees have been swarming in a most unusual way this year; in fact my garden is quite crowded with hives; but I am sorry to say I have been unable to get any super honey. All the old people about here say they have never known such a bad year for bees: the cottagers lost quite half their stocks in the spring, and they have not now a single hive fit to stand the winter, and as they use nothing but the old straw hive, they are unable to feed them. Our old church, which has always had its roof full of bees for the last hundred years (thirty-four years to my own knowledge), is now nearly clear of bees: they seem to have been starved out (the church is of Saxon date), and strange to say, no one has ever known a swarm of bees to leave the church; they always swarm out of one hole and go into another without pitching, and numbers of swarms go to the church in the same way. I watched a swarm last month that had come straight away from their hive a quarter of a mile away, they had been followed up by two children, and had passed over five gardens and two orchards, but never attempted to pitch, and went straight into a hole under the roof of the church. Does this not prove that bees select a place to go to before they leave their hive?—Captain C. A., *Hurstbourne Tarrant, Andover, August* 19, 1879.

[There is little doubt but that bees often select a spot for swarming to some time before they issue; but we have never known a swarm, with their queen mother, leave the hive and go direct to the place chosen. When swarming has been delayed, and the mother queen destroyed, the young princesses play all sorts of pranks, being light of body and strong of wing. They often 'lead' a swarm, being driven from the hive by internal discord, whereas the parent queen is sometimes the last to leave the hive; and often then falls to the ground and is lost. After such a calamity a young princess leads off 'a first' swarm, and her actions, if not understood, are very misleading.—Ed.]

EXTRAORDINARY FECUNDITY.

From one hive of Ligurians I have had three swarms. From the first swarm I have had three casts, all of which we have put back; from the second swarm there has also been a cast, which we put back.

We put fourteen sectional supers on the first swarm at first; and I have had over 14lbs. of honey from them, which took a first prize at the Highland and Agricultural Show this month. We have cut forty-seven royal cells out of the first swarm hive. I put a glass super on the second swarm hive, and when looking at it we found it full of brood.—A. S. W., *Perth.*

AGE OF BEES.

Following up your request on p. 60, I noticed that on July 25th there were not 100 Ligurians in the hive; these would doubtless be the few hatched out of the little piece of comb inserted May 31st. On August 2nd these were all gone.—Henry Yates, *Grantham.*

COMB-FOUNDATION.

On 6th of June I commenced bee-keeping with a first swarm of Ligurians in an Improved Cottage hive. As the weather was bad I fed it for a few days, and only stopped when I found the bees were able to go out. They had the hive full of comb about the beginning of July, and seemed going on well, till I found one morning they were throwing out immature bees. This continued for two or three days, until I began to fear the hive would become depopulated. Without any definite idea I started feeding again, and was glad to find the bees stopped throwing out dead grubs very soon after.

About the middle of July, finding the hive quite full I gave them a bell-glass super, with a piece of comb-foundation. The comb-foundation was treated by the bees with contempt, as they did nothing for about a fortnight but hang about the zinc ventilator.

Things continued in this state until the beginning of August, when finding the bees hanging outside the hive in great masses, I gave them another bell-glass, which enabled the outlying bees to stay in the hive. They did nothing but cluster about the ventilator until August 15th, when I found they had commenced building comb in both supers; but in one case they started from the floor of the super, and in the other on the ventilator. I should say that in both supers the comb is at right angles to the direction of the comb in the hive.

My faith in comb-foundation has been sadly shaken in consequence of no notice whatever having been taken of it by the bees.—R. S., *Dublin*.

[The limited experience above rendered affords no criterion of the value of comb-foundation, for it was offered to the bees in a season when they could not get honey enough to induce them to take possession of it, and increase its waxen bulk; and it was also in a kind of super which requires great heat, and a large inflowirg of honey to enable them to store therein a surplus at any time. If our correspondent doubts the value of foundation, let him put a frame containing it into the body of his hive, in the brood-nest; and if his bees have the means, *i.e.* sufficient honey or syrup, they will at once proceed to work it out. Bees cannot make wax if they cannot get a supply of honey, any more than an animal can become fat when food is denied it.—Ed.]

COOK'S NEW MANUAL OF BEE-KEEPING.

We have much to regret with regard to the way in which this valuable work came before our readers. A copy reached us from Trübner & Co., of Ludgate Hill, the American and other foreign publishers in England, and their published retail price was 7*s*. 6*d*. per volume, subject to a trade discount, as is usual in such cases. We were in blissful ignorance of the true state of affairs, and accepted the conditions *bonâ fide*, and were the medium unfortunately through whose influence a number of the books were sold at the price named. But on the arrival of Mr. Newman (the editor of the *American Bee Journal*, and the actual publisher of Cook's work) at Kilburn, we were both surprised and disgusted to learn that the selling price of the *Manual* was 5*s*. only, less considerably than we had been paying Trübner for it. Naturally enough we applied to that firm for recoupment of the overcharge, stating what Mr. Newman had said, and intending to return a half-crown to each of those who had purchased the book through our agency, but our application was not successful; and as a matter of business we now leave it to the Ludgate firm to make any explanation they may think advisable, for which our columns shall be open; but in the meantime we beg to say that we can supply the work direct from the publisher at 5*s*. per volume. We must, however, state that since it has transpired that the price is comparatively so low, our stock is much reduced, and only a very few applicants can be supplied at present, though we have taken measures to satisfy the demand which is already created.

The extraordinary knocking down of price in this one book is highly suggestive, and points to the value of personal communication; for, except for the visit of Mr. Newman, our faith in Trübner's prices would not have been disturbed, and thus a most valuable work would have been practically denied to the British public. We regret exceedingly that any one should have been mulct of 7*s*. 6*d*. before we knew better, but we can fairly say that all who have sent 7*s*. 6*d*. for the book since the Kilburn Show have (often to their surprise) received a half-crown's worth of stamps into the bargain.—Ed. *B. B. Journal*.

A CAUTION.

We have received information that a man calling himself 'Wyld' has paid a visit to several bee-keepers in Essex representing that he had been sent by our firm for the purpose of purchasing stocks of bees on our account. We learn that after obtaining the bees he has decamped without paying for them or his hotel bill for board and lodging for a week, and also the hire of a horse and trap. We wish to caution those who may keep bees to be on their guard, as we have no man of that name, or who answers the description given, in our employ.—George Neighbour and Sons, 127 *High Holborn, and* 149 *Regent Street, London*. *August* 28, 1879.

Echoes from the Hives.

Rectory, Upton Scudamore, Warminster.—'I am enchanted with my medal for bee-flora collection, and feel very proud of it. I owe much to the *British Bee Journal*, and some of my specimens were grown from seeds obtained from Southall, and were flowers that I should not have known of but for the *Journal*. And here I should like to tell you that my greater success in bee-keeping, and my increased pleasure in the pursuit, are owing to the *Bee Journal* also.'—Ellen Rooke.

Godalming, July 30, 1879.—'It seems to me so late in the year, the days getting rapidly shorter, the weather uncertain and so forth, that I feel no confidence as to what is best to be done. I had a stray swarm come and take possession of my tower on Monday last, so the swarming instinct has been raised by the change in the weather. The Ligurians do well, they work early and late; they carry in pollen in large quantities, yet they seem crowded with bees. They seem a very vigorous, active kind of bee, and I should fancy hardier than the other kinds; at any rate they go out later in the evening. But none of my bees seem to have any stores unless they have gathered something the last three days. I have not had time to look at them this week.'—J. P. W.

Thankerton, Aug. 24th, 1879.—'Miserable weather here, scarcely a swarm, and bees not able to keep themselves. I hope we shall have better weather for the beather, or we shall require to feed to keep them right for winter.'—John R. T.

Bridge of Earn.—'Honey gathering is over for a season, except in the higher grounds where the heather is just coming into bloom. Super honey is *nil*, and late swarms are being fed preparatory to wintering.'—J. Ellis.

Queries and Replies.

QUERY No 324.—1. When a general slaughter of drones takes place in the old stock two or three weeks after it has swarmed or been driven, is it evident that the young queen has been fertilised?—*Reply.* Not absolutely; but in an ordinary season it is a fairly good criterion.

2. How can the existence of the queen in a hive at the end of the season be most readily established?—C. T. S. —*Reply.* By ocular demonstration.—ED.

QUERY No 325.—*Uniting in frame-hives.*—Thanks for your reply to mine in last *Journal*; but on referring to Feb. No. I find it does not state how to drive and unite bees in a frame-hive that have recently been transferred from a skep. I quite understand how to do it with skeps, but I should think that driving from a frame hive would knock down the newly-transferred combs. And you did not state whether I should be right in uniting bees from other hives in a week or two after the transfer. The bees which I could have for the driving are about a mile from mine, how would you manage to get them home for the purpose of uniting?—W. J. G., *Ottery St. Mary's.*

REPLY TO QUERY No. 325.—There is no necessity for 'driving' bees from bar-frame hives for the purpose of uniting them. Remove all the combs and brood from the bees, shaking or brushing them back into their hives, and reducing them all to a common state of poverty, *with nothing to defend.* Give them an odour by sprinkling them with thin scented syrup, and mix them altogether; then gradually return their brood combs (also scented) and as many others as may be required to furnish a proper brood nest. Bring the bees home in the skeps into which they have been driven, and, after scenting, unite as above.—ED.

NOTICES TO CORRESPONDENTS & INQUIRERS.

W. L. O. (*Westbury, Salop*).—Extracted honey will keep and solidify if it be ripe, *i.e.* fit for sealing at the time of extraction. When taken from the comb, crude as it is gathered, it is apt to sour. We have found the plate-rack above our kitchener a good place for our honey jars before tying down with parchment. There is considerable dry heat, and there being no open flue, little liability to dust which might contain the germs of fermentation.

CAROLUS.—The honey-comb arrived, but though not having been put into an impervious case, it was in a sad mess and greatly annoyed our postman. There is no sign of foul brood, but there are evidences of brood having been reared in it, and there is a little pollen which adds to the discoloration. Foul brood is unmistakable. Before it has dried it is of a nasty brown colour, viscid in its consistency, and gives forth a most disagreeable stench, and afterwards it forms a scale which lies flat at the bottom of the cell, and which the bees cannot remove, making the cradle into a coffin. This being so, it is not very surprising that the next infant bee fed in the cell with the dead corpse for a bedfellow should sicken and die also.

S. S. B. D. (*Buxton.*) *Bee Food.*—Our recipe for bee-food at this time of the year is 'to five pounds of best loaf sugar add two pints of water, boil and stir, and add a wine-glass full of vinegar, boiling for a few minutes after. There are, however, so many different qualities of best (?) loaf sugar that every one must judge from experience, and act accordingly. Bee-food cannot be too thick at this time of year, as it relieves the bees of the necessity for evaporating the superfluous moisture.

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LONDON: W. KENT & Co., 23 PATERNOSTER ROW, E.C.

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION,

INSTITUTED OCTOBER 1875.

President: The Right Rev. the Bishop Suffragan of Nottingham.

THE ASSOCIATION will hold their FOURTH GREAT ANNUAL EXHIBITION of HONEY, BEES, HIVES, &c., and PRACTICAL APIARIAN MANIPULATIONS, in conjunction with the LONG SUTTON AGRICULTURAL SOCIETY'S SHOW, at Long Sutton, on Wednesday and Thursday, October 8th and 9th, 1879.

SCHEDULE OF PRIZES.

Class. **BEES.**

1.—For the best Stock, or Specimen of Ligurian Bees, to be Exhibited with the Queen in an Observatory Hive. 20/0 10/0 5/0

2.—For the best Stock, or Specimen of English Bees, to be Exhibited with the Queen in an Observatory Hive. 15/0 7/6 5/0

3.—For the best Stock, or Specimen of any Distinct Species of Honey Bees, other than Ligurians, or the British Black Bees, to be Exhibited with the Queen in an Observatory Hive. 20/0 10/0 5/0

HONEY.

4.—For the largest and best Supers of Honey, the produce of one Hive. 20/0 15/0 10/0 7/6

SPECIAL PRIZE, presented by Mr. C. N. Abbott, Fairlawn, Southall, a Honey Slinger, for the largest and best Exhibition in Class 4, by a Cottager, who shall be a Member of the Association.

5.—For the best Glass Super, under 20 lbs. nett weight. 15/0 10/0 7/6 5/0 2/6

6.—For the best Glass Super, under 10 lbs. nett weight. 10/0 7/6 5/0 2/6

SPECIAL PRIZE, presented by Mr. J. Bolton, Grantham, a Complete Bar-Frame Hive, for the best and largest Super of Honey Exhibited in Class 5 or 6, by a Cottager, who shall be a Member of the Association.

7.—For the best Wood, or Wood in combination with either Glass or Straw, Super of Honey. 20/0 15/0 10/0 7/6 5/0 2/6

8.—For the best Exhibition of Honey in Supers, or Sections of Supers, separable, in the most attractive form and each not more than 3 lbs. in weight, the total weight of each Entry to be not less than 12 lbs. 15/0 10/0 7/6 5/0 2/6

SPECIAL PRIZE, presented by Mr. E. W. Lister, of Oakwood, Kirkburton, Yorkshire, Lister's Hive for the Million, for the best Exhibit in Class 8, by a Cottager, who shall be a Member of the Association.

9.—For the best Straw Super. 10/0 7/6 5/0 2/6

SPECIAL PRIZE, presented by Mr. R. R. Godfrey, Grantham, Current Vol. of *B. B. Journal*, for the best Exhibit in Class 9, by a Cottager, who shall be a Member of the Association.

10.—For the best Glass of Extracted or Run Honey, of not less than 5 lbs. nett weight, quality to be the chief point of excellence. No Exhibitor will be allowed to take more than one prize in this Class. 10/0 7/6 5/0 2/6

SPECIAL PRIZE, presented by Mr. J. Plowright, of Grantham, Four Crystal Palace Supers (Wood and Glass), for the best Exhibit in Class 10 by a Cottager, who shall be a Member of the Association.

11.—For the best and largest Exhibition of Extracted or Run Honey, in Glass or other Jars, quality as well as weight will be taken into consideration. 20/0 15/0 12/6 10/0 7/6 5/0

All Honey must be bonâ fide the produce of 1879, *gathered by the Exhibitor's own Bees.* (*See Rules.*)

SPECIAL PRIZE, presented by Mr. G. Brett, of Grantham, Brett's Bar-Frame Hive, for the best designed Super, Sectional or otherwise, by an Amateur, who shall be a Member of the Association.

SILVER CUP.

The Silver Cup of the Association, open to Members only, for the best and largest Exhibition, in all or any of the Honey Classes, of Honey taken without destroying the Bees. The Cup to become the property of the Member who shall win it Three Times.

Class.

12.—For the finest sample of pure Bees' Wax, in cakes of not less than 2 lbs. 5/0 2/6

13.—For the best Liqueur, Wine, or Mead made from Honey, with the recipe attached. 10/0 5/0 2/6

HIVES.

14.—For the best Hive for Observation purposes. 20/0 10/0

15.—For the best Complete Hive, on the moveable comb principle, with facilities for storing surplus honey. 20/0 10/0 5/0

16.—For the best and cheapest Complete Hive, on the moveable comb principle, suitable for Cottagers, price not to exceed 10/0. 15/0 10/0 7/6 5/0

17.—For the best and cheapest Straw Skep, of any description. 7/6 5/0 2/6

18.—For the best and cheapest Sectional Supers for producing Honey in the Comb in a saleable form. 10/0 5/0 2/6

19.—For the best Honey Extractor, portability and cheapness to be considered. 20/0 10/0 5/0

20.—For the best and most complete Collection of Hives, Bee Furniture, and Apiculturist's necessaries, no two Articles to be alike. 30/0 20/0 10/0

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22.—For the best and largest display of Honey Producing Plants, in dried state or otherwise, such Plants to have a card attached, stating time of flowering, duration of bloom, and any other particulars calculated to be of interest to Bee-keepers. 1st Prize, Langstroth on Bees. 2nd Prize, Current Volume of *B. B. Journal*.

EXTRA EXHIBITS.—The Judges will be empowered to award Prizes for any Exhibit not included in the above Classes, having a bearing on the science of Bee Culture.

Entry Forms and Schedules may be had of

R. R. GODFREY, Grantham,

Hon. Secretary of the Lincolnshire Bee-keepers' Association;

or J. W. SWAIN, Long Sutton,

Secretary of the Long Sutton Agricultural Society.

RULES.

Every intending Exhibitor must send his Name and Address, *enclosing Entrance Fee*, to the Hon. Secretary before the 29th of September, 1879.

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 78. Vol. VII.] OCTOBER, 1879. [Published Monthly.]

Editorial, Notices, &c.

OCTOBER.

With the present month will end all hope of further honey-harvest, and there will be nothing to do but pack up the poor bees for the winter, and we most earnestly advise immediate attention in that respect. The past month has been more kindly than was expected, and gave nearly a whole week of fine weather, during which much was done in securing the crops of hay (first crops in September!!) and corn; but the bees had little opportunity for anything save the very natural process of robbing and uniting. There is an old law, universal it would appear, that—

> 'They shall take that have the power,
> And they shall keep who can;'

and in regard to bees in the natural state, or in the hands of careless bee-keepers, it is a law which provides against their extermination; and it is really providential that their instincts survive their attempted domestication to so great an extent. We say 'attempted,' but we mean, in numerous instances, their *pretended* 'domestication,' for with many hundreds of bee-keepers their cultivation is but a sham, and they are let alone to follow their own devices; and but for the brigand instinct which teaches them to 'rifle, rob, and plunder,' and absorb the weaker with the stronger stocks, there would be great danger of their ceasing out of the land. We regret very much that the season has been such a bad one; it troubles us exceedingly, because it has been one of great effort, as may be seen by the newspaper reports of the doings of the British (and other) Bee-keepers' Associations, and it is really grievous that such effort should be nullified in so great a measure by weather contradiction.

We, in common with all well-wishers to bees and bee-keepers, continually assert the advantages that accrue from the humane system of bee-culture, and urge upon cottagers the desirability of their cultivation as a means of increasing their wealth; but the wretched weather has this year falsified all such assertions, and put the balance on the wrong side, causing many to lament the necessity for an outlay to preserve their stock, instead of rejoicing in an income to cheer them by its aid to face the coming winter. There is, nevertheless, an amount of satisfaction in the feeling, that all those who have worked in the good cause have done their best to prevent loss, by giving advice and instruction to their less-enlightened brethren; and we can only hope that the salutary lessons that have been taught and learned during this 'year of disappointments' may be harbingers of good in the future. We need not, however, waste time or space in useless verbiage; there is work to do, as may be inferred from the following, taken from a heap of letters on the same subject:—

> 'Owing to the most inclement season, so many new bar-frame hives are not half filled with comb, that I expect hundreds of stocks are likely to disappear during the winter. A few hints in your next issue on the best system of doubling, feeding, and preparation of food would, I think, save many valuable lives. I have been feeding, both English and Ligurian, nearly all summer, and certainly since Kilburn, except during one week.—J. P., *Penrith.*'

We, therefore, proceed to the more congenial task of showing our readers, at the end of a bad season, 'how to make the best of it.'

Preparation for Winter.—Before going largely into this question, we will first try to tell those whom it may concern, what ought to be the condition of a stock of bees, to ensure (as far as is humanly possible) its safety during the trying time of winter. Firstly, then, there should be, say, at the end of October, an abundance of bees, and the majority should be young ones, or there will be but few left to undertake and carry on the all necessary recuperative breeding in the spring of the following year. Secondly, there should be an abundant store of both honey (or syrup) and pollen, nearly the whole of which should be

sealed, so that there may be little liability to souring or fermenting, either of which forms of decomposition will be almost certain to produce dysentery, and eventually foul brood.* Thirdly, bees should be kept perfectly dry and clean, and there should be no draught through their hive, nor any possibility of wasting their self-generated heat. Fourthly, they should be allowed to remain perfectly quiet during all dull, cold, and wet or stormy weather, which implies that all 'preparation' should be completed before such weather sets in. These are the heads of the subject we intended to dilate upon, and out of them we hope to weave an instructive and profitable discourse.

In the first place, then, as there should be *plenty of bees, and the majority of them young ones*, we must see how such a desirable condition of things can be brought about. It is quite understood that, naturally, bees discontinue breeding on the cessation of income; but that they will continue to increase if the income be kept up. Now in many parts of the kingdom, during the past summer, there has only been a sufficient income to induce breeding, and large populations have been the result; but where such income has stopped, as in the majority of cases it has, by the end of August, there would be no further increase, and the bees would, by the time for going into winter quarters, be all old ones; that, considering the wear and tear of foraging, fighting, and defending, would have nearly lived their allotted time. We say *lived*, because the life of a bee depends on the amount of labour it performs; its delight is in hard work, which is its life's measure, and its accomplishment is the end of bee life. It will, therefore, be evident that to ensure the healthy condition of a colony, it should go into winter quarters with a large proportion of young unworked bees, such as shall survive until the spring, unexhausted by labour of any kind, further than that necessarily brought about by the natural production of heat, and that is really very little.

Seeing, then, how important it is that bees should be kept breeding until as late a date as possible, consistent with safety to the brood, the importance of continuing the food supply after it has naturally ceased cannot be overestimated. It is renewed life to the hive, it is indispensable to its existence; and the bees seem to know it, for do not they strive to their utmost to obtain its increase, by robbing, by visiting the grocery stores, breweries, cider mills, public-houses, and many other places where sweet odours may be found, and where they die or are slain by thousands?

Yet nearly all this great loss may be prevented, or its effect provided against, by the adoption of our system of gentle, continuous (stimulative) feeding, invented in 1872 (see p. 14, vol. xv., of *English Mechanic and World of Science*). We have again and again referred to this subject, and we feel we cannot too strongly impress upon our readers the fact that there is no safety during winter for hives with old bees; and that even though they may survive, they will be useless in the spring, because the labour attendant on early breeding will wear them out before sufficient young bees have been brought to life to take their places; and the stock will come to grief 'just as they were breeding nicely,' as has been many times sagely observed. But there is another way in which it is possible to accumulate large populations, and a good supply of young bees, and that is by the process called uniting.

Uniting is one of the simplest operations in bee-culture, yet is most often attended with failure, because amateur operators will try to avoid or dispense with some part of the formula by which it may be successfully achieved. In the February number of this *Journal* directions were given for uniting the bees contained in straw skeps; and we inferred that those having frame-hives would know that shaking bees from the combs, and thus depriving them of their property, would be equivalent to what is known in the skep world as 'driving.' The former removes the property from the bees, and the latter causes the bees to leave their property; and that is all the difference, if it be any, in the result of the proceeding; and yet the former process is considered so terrible and difficult, as to cause a real flooding of letters to us on the subject. The fault is doubtless our own, because we ought not to 'take it for granted' that anyone has read former directions from our pen; but, apologetically, we confess to a fear that a too frequent repetition of any subject may fall upon the eye or ear of the majority, and hence our frequent allusion to our 'leaflets' on the chief branches of bee-keeping, which we, practically, 'give away.' Nevertheless, the demand for present information must be complied with, and as regards uniting, or doubling, as the process is sometimes called, we will now state the first great principles on which success in the operation may be hoped for, viz.:—

Stocks, to be united, must be near each other, no other hive intervening. They should be made to bear the same odour, and the bees should be caused to gorge themselves with honey or syrup, as in that condition they are

* A good housewife seals or covers down her preserves and pickles that they may keep, and only opens such as are required from day to day; and bees do likewise, if they are able.

always inclined to be peaceable. To get them near each other when their stands are not contiguous, they may be brought from long distances, *at once*, and placed together; but when comparatively *near* each other, they must be brought together by short stages, day by day, on such days as they can fly abroad, so that they may note each successive removal.*

Now those who neglect one or other of these precautions, and fail in their endeavour, are apt to call themselves amateurs, or novices, or beginners, and hold themselves excused on such grounds; but if, by any fortuitous combination of circumstances, they succeed, everything they did not do they immediately write down as unnecessary, and the world is at once made wiser (?) by their experience (?). When stocks are to be united, they must be got together. They may be taken to a LONG distance (according to the season) and set down side by side, and united forthwith, and they will not desert their new home, because they will not be within the radius of their former flight; or they may be gradually brought together in their own curtilage as aforesaid.

To make them bear the same odour, nothing more is necessary than that they should be well smoked with the same tobacco, rag, or fustian smoke, or that they should be sprinkled with syrup scented with peppermint, or nutmeg, or any other odoriferous agent. Smoke should, however, be first administered, that the bees may become alarmed, and be anxious to gorge; otherwise, on opening a hive, many may fly abroad and not partake of the odour intended, and such bees on returning may be quarrelsome, fightable, and cause mischief.

The next requirements are *plenty of stores*, which should be sealed over; and common sense dictates that where the bees have not been able to gather for themselves, food should be given to them. Experience has shown that bees do not seal their liquid food until the superfluous water in it has been evaporated; and as this operation requires time, and considerable heat, the same monitor (common sense) ought to induce bee-keepers to give the supply in time to get it sealed over before the cold weather comes. Unsealed honey (or syrup) is liable to the action brought about by the germs of fermentation that are everywhere floating in the atmosphere; and should fermentation be 'set up,' the fate of the hive is sealed: for the food given to the young bees would contain fermentive properties, and will ferment in the bodies of the baby-bees, and the dire disease, called foul brood, following on dysentery, will be the result. These suggestions may appear to be late, but they are simply explanatory of reasons for directions given long since, and often repeated.

The next necessaries for safe wintering are *perfect dryness and cleanliness*, and these can only be secured by perfect ventilation, without draught. There has been a great deal of nonsense written about the porosity of the straw skep, and of straw being a good ventilator; the writers forgetting that the bees stop the possibility of ventilation through it, by glazing it inside with propolis to such an extent that an old skep, when the combs are removed, may be used as a vessel to carry water in, if it be not broken or cut. This being so, straw skepites should take care that ventilation should be secured by cutting a hole, two or three inches across, through the top of the hive, when, by putting a piece of flannel, or other porous material, over it, and covering with a handful of hay, the requisite conditions will be secured.

Frame-hivists have little to do beyond attending to the quilt, remembering that it is possible to have 'too much of a good thing.' One layer of sheeting, ticking, or hair-cloth, and from three to four of house-flannel, are all that are required; but care must be taken that there is plenty of ventilation through the space under the roof that covers it. The vapours of a hive can pass safely through 'the quilt' as described; but if more thicknesses were piled on, they might condense in the upper strata, and cause wetness and coldness, that would soon generate mouldiness, and the whole thing would be a defect instead of a benefit. The loss of heat by its circulation round the ends of the frame is treated of on another page, and is a subject of very great importance—far greater, indeed, than the majority suppose. We have been dinning this into the ears of our readers for years, and, at the risk of creating nausea, repeat it once more.

If dryness be not ensured there will soon be disease, and cleanliness will then be out of the question. Dryness will *prevent* dysentery, but if the disease be set up, it will continue until spring.

The last subject we have to touch upon is the *necessity for perfect quiet during the winter*. It ought by this time to be thoroughly understood that even a slight disturbance of bees,

* It is impossible to give minute data in this respect. In a fine summer the radius of bee-flight may extend for two miles (or more), when it will be evident that at a distance of three miles only foragers will come well within the area they formerly flew over, and 'memory may bring back the feeling,' that they love their old home still, and they may go back to it to perish. But it ought not to be forgotten that there are times when for many weeks, more than the usual extent of a bee's life in fact, through awkward weather, the bees may be unable to take a flight of even a hundred yards, and, therefore, if removed at such times to a distance of say three hundred yards, they will not get within view of their former foraging-ground, and their removal may, in that case, be safely effected.—ED.

whether by tapping the hive to ascertain if they be alive, lifting them to discover their weight and probable chance of existence, increasing their protective coverings or supports, or doing anything that may bring forth a remonstrative or demonstrative buzz, is damaging to the well-being of the hive during cold weather; and, therefore, to prevent the seeming danger, all that is likely to occur should be provided against beforehand. A prolific source of irritation, and consequent damage, was lately pointed out by W. Hunt, Esq. of South Warnborough, Hants, who, in referring to the action of the wind, its effect on trees, &c. which were touching the hive, or bee-shed, sufficiently showed that disturbances to hives may arise outside the general run of experience, and, having in view the perfection of the art of wintering, it will be well to avoid the irritating media hinted at.

Floor-boards may often require attention during winter; but, as now constructed, they can be removed at night, and cleansed or reversed in a moment without the bees being in any way disturbed, unless they be sufficiently numerous for their cluster to reach down to the floor, in which case its removal will be unnecessary.

USEFUL HINTS.

Bee Food.—In these days, when sugar is made from such varied materials, a distinct formula cannot be given either for syrup or barley-sugar, their constituents requiring varied correction. What is required is a food that the bees can imbibe. They are not like wasps, with hard jaws, with which they can bite out lumps of sugar, and carry them into their hives. All the sweets they carry are taken into their honey sacs in a liquid form, and therefore the idea that dry sugar can be stored by the bees is erroneous. Syrup should be as thick as possible for winter storing, for the reasons that it will require very little evaporating; but thin syrup should be used for sprinkling bees, when uniting, so that all may get a taste, without fear of their being stuck together. We much prefer barley-sugar for late feeding; but always recommend that feeding for winter be got over in time to prevent the necessity for its use.

Quilts should have holes cut through them, to feed through, except in the cases where hair-cloth is used, as that, being sieve-like, will permit the bees to take their food through it. In such cases only the upper strata of the quilt need be cut through. Where a hole is made entirely through, it should be cut over the bees' winter nest (*i.e.* the present brood nest), and if a feeding-stage be set over it the bees can be fed, or examined at pleasure. When quilts are of several layers of thin material it would be well to lay excluding-adaptors, zinc side uppermost, to keep them flat and comfortable, as sometimes a mouse will find its way to the upper story, and do mischief.

Crown-boards should never be used. They are useless incumbrances, and a curse to bee-keepers, since they permit no ventilation without draught.

Wasps' Nests.—These are very scarce now, and by vigilance may be made much scarcer. The floods have befriended us a great deal in this respect; but the remnant are very active, and will produce a queen progeny, that may worry us in the future. When their nests are discovered, pour in some turpentine at once, and dig out the combs. Remember it is the sentinels that are dangerous, and the turpentine having settled their account there is no danger even in broad daylight. Fire is quite unnecessary. The combs should be crushed and buried.

Wax Moth.—This nuisance is very mischievous, and should be very carefully watched for and destroyed. It attacks half-empty hives, those that are queenless coming in for a good share of their attenion. American apiarians declare that Ligurian bees are more than a match for the moth, and that it never attacks their hives.

Condemned Bees.—These may be utilised in a profitable way if the brood and pollen combs found in their hives be saved and put into frames, as per directions in our leaflet on 'Transferring.'*

Narrow Entrances.—Entrances should be gradually narrowed: nights are long and cold increasing; so that the evaporation of surplus moisture prior to sealing is more difficult. Narrow entrances are easy to defend, and their being so will help to prevent robbing. Prevention is better than cure.

CYPRIAN BEES.

The *Journal of Horticulture* reports, vide p. 241, Sept. 18, that at a Committee meeting of the British Bee-keepers' Association, held on the 10th ult., Mr. J. P. Jackson stated that he found himself, through press of business, unable to attend to his apiary so constantly as he could desire, and he wished 'to place at the disposal of the Committee *the only Cyprian queen of undoubted purity in the country*, in order that the holder of her might, if possible, secure from her pure progeny, with a view to the establishment of Cyprians amongst us.' The italicising is our own, and we wish to direct attention to the passage so treated, because it is a puffing 'flourish of trumpets' in favour of an individual member of the Committee, and a

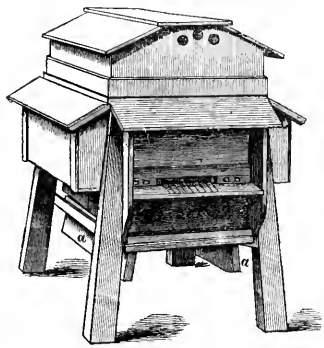
* Price 1*d.*, post-free, Office of *B. B. J.*, Southall.

direct libel against the integrity of others who profess, by equal right, to have *Cyprian queens of undoubted purity*. Such a libel is damaging to every other bee-keeper who makes profession of having Cyprian queens, and to every sender of those described as such.

We leave others who may feel hurt by the imputation to defend themselves; but, on our own behalf, shall be glad if the gentlemen who sanctioned the statement that has gone forth, as described, will make plain the grounds upon which the purity of the Cyprian queen which we purchased at the late great Kilburn Show, can be impeached? To the best of our belief the Cyprian queen, imported by Mr. Jackson, was bred in Germany, and brought over to him by Herr Gravenhorst, our visitor at South Kensington. Ours, on the other hand, though also bred in Germany, came by the usual express route, and was delivered over to the Rev. H. R. Peel, the Hon. Secretary of the British Bee-keepers' Association, of whom we purchased it. From our personal knowledge of Mr. Jackson we do not believe he made use of the words attributed to him, but would rather consider them the effusion of mischievous writers, who use the pages of the *Journal* referred to for their own aggrandisement, without reference to truth and justice, and without concern for the injury they may inflict upon others.—Ed. *B. B. J.*

ABBOTT'S ROYAL STANDARD HIVE.

First Prize at the Royal Agricultural Society's International Show at Kilburn, 1879.



This hive exhibits an extension of the 'Combination' principle which prevailed at nearly every competition in England during 1878, and shows to the fullest extent the advantages that such principle offers. Hitherto prizes have been offered for *hives alone*, but this year greater opportunities for the display of judgment and ingenuity were afforded, the prize offered being for—

'The Best Hive, *on the Moveable Comb principle, with the best arrangements for securing a Harvest of Comb Honey, with Covering and Stand complete.*'

For this hive are claimed the following advantages:—

1st.—That the roof is easily removeable, permitting access to any part of the hive on either side.

2nd.—That the body-hive is elastic, its capacity being readily increased or diminished at will by the use of the mechanical dummies.

3rd.—That it may be used on the supering, nadiring, collateral, or longitudinal principles, and swarming can be almost certainly prevented.

4th.—That it is so constructed that its supers may be heated by a hot-water apparatus, which will cause bees to take immediate possession.

5th.—That its construction permits of sections being placed longitudinally—*i.e.*, at the back of the body-hive—the brood-nest being easily contracted, and queen-excluder zinc preventing the access of the queen to them.

6th.—That nadirs (in sections or otherwise) may be placed beneath the brood-nest, and may be protected against queen intrusion with zinc, if desired, with perfect ease and celerity.

7th.—That sections may be placed collaterally on both sides of the hive, and admission given at any point or points, by an ingenious arrangement of slides, the queen being excluded.

8th.—That in lieu of sections being placed at the rear of the brood-nest, as suggested in No. 5, ordinary frames of comb may be inserted for use with the honey extractor.

9th.—That the ingenious arrangement of slides in the sides of the hive permit of its use as a twin hive for wintering, the stocks being divided by a thin mechanical dummy. The loss of heat will thereby be minimised. Entrance can be given at any point or points on either side of the hive.

10th.—That when used as a single hive, the sides and back may be stuffed with hay or chaff on the American plan, or they may be left as dead-air spaces—dead air being an excellent non-conductor—and the heat preserved.

11th.—That, whether used as a single or twin hive, the bees may be completely enclosed without the entrance being stopped up, thus virtually placing them, as it were, in a dark cellar, and preserving them against the ill effects of snow-light and other evil influences to which bees are liable in winter.

12th.—That, by the arrangement of the slides at the sides and the space at the back of the hive, the bees may be fed at any point in

absolute security, as the food may be enclosed or distributed at any part, perfectly isolated from outside attack.

13th.—That, though the hive is capable of so much in the hands of an expert, it is so simple in construction that it may be used by a cottager or amateur, and even a wayfaring man could scarcely mistake its uses.

14th.—That, as a bar-frame hive, it is one of the easiest to put a swarm into, the space at the back giving the greatest possible facility.

15th.—That, being a combination of the best ideas of all nations, it is, in a sense, a MODEL HIVE, adaptable to all climes and purposes.

This hive also took second prize at the South Kensington Show; first at Edgbaston; first at Shrewsbury; and first at Atherstone, Warwickshire.

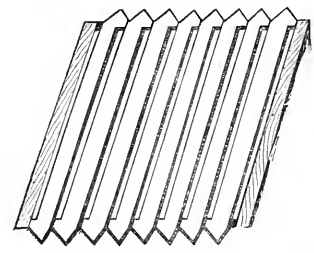
LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

LONG SUTTON SHOW—EXTENSION OF TIME FOR ENTRIES.

We are requested by the Hon. Sec. of the Lincolnshire Beekeepers' Association to state that entries will be received up to the 4th of October; and we hope that all who possibly can will send exhibits of hives and honey, to enhance the exhibition, and make it worthy of the position it holds in respect of the Agricultural Association to which it is allied.

CIRCULATION ROUND FRAME ENDS.

We have many times called the attention of bee-keepers to the loss of heat which is permitted by the circulation of air round the ends of the frames, particularly during winter months, when heat is the essence of life; and we ask pardon for reverting to the subject; pleading, however, that our experiences of the past summer (?), during which natural heat was considerably below the average, has forced upon us the conviction that the circulation of air round the ends of frames, is as detrimental in such a season as at any other time. The leaven of the idea is beginning to work in the minds of many, and we are continually inquired of as to the way in which the circulation is to be prevented. All open bar-frames have a space of about half an inch between them, as will be understood by any one looking at the top surface of a hive, and as the frame ends do not touch the back and front of the hive, as exhibited in the woodcut on page 48, it is essential that something should be used to impede the passage of air and heat around them. We do not propose to put anything between the frame ends and the front and back of the hive as many seem to imagine, but to place pieces of wood between the frames themselves; at the same time these pieces of wood will be close against the hive, and will thus cut off the escape of heat. The woodcut will



sufficiently illustrate our meaning; but we cannot dismiss the subject without further alluding to the experience hinted at above.

In early July we found a small cast or swarm on a branch, and hived it in a skep for the time being, then taking an old bar-frame and six frames of comb, standard size, we placed them in the hive, with a block at each end, as suggested, placing a full frame of comb at the back, as a dummy. Six weeks after it had increased marvellously, and was one of, if not the best stock in our apiary, beating all the earlier swarms that had been equally well supplied with combs, and yielded us a good share of honey, taken in mid-August by the aid of the extractor. When a full frame of comb is used as a dummy, it affords an excellent means of ascertaining the increase of the bees. There is circulation under all the frames but not round them, so that as the numbers increased the bees take possession of the said dummy, and store, and breed in it, and spread themselves outside of it at the back of the hive, giving their owner a hint that they are ready for more space in which to labour.

QUEENS FEEDING.

Mr. Pettigrew, in the *Journal of Horticulture*, Sept. 18, under the heading, 'Things Known and Things Unknown,' says, 'From every standpoint the history of a queen-bee is surrounded by a world of mystery. *A queen eats often and eats much*, but who has seen a queen-bee at her own breakfast and dinner-table? Who has seen her feed at all?' We do not pretend to reconcile the assertion we have italicised with the queries following it, but as regards the latter we take leave to say that we have often seen queens feed themselves from both honey and syrup. Only a short time since, on the arrival of a batch of queens from Italy, a queen was the sole survivor in one of the boxes, all others having died of starvation, and she, poor thing! was in a staggering con-

dition, blundering about anyhow, if such a term may be used with reference to a queen; but as soon as a drop of syrup was placed before her, and her head directed to it, she began to imbibe it; and having warmed her by breathing upon her, she soon recovered liveliness, and was forthwith introduced to a stock of black bees.

THE LANGSTROTH FUND.

The following subscriptions have been received:—

Rev. H. R. Peel ...	...	£1	1 0
T. W. Cowan, Esq. ...	...	1	1 0
Mr. C. N. Abbott ...	...	1	1 0
A Renfrewshire Beekeeper ...		1	1 0
R. J. Bennett, Esq. ...	...	1	1 0

The following have been promised:—

Dr. C. Orme ...	...	£0	10 6
Walter Hewson, Esq. ...	...	1	1 0

LETTER FROM HERR GRAVENHORST.

Before departing from England, allow me to express my most sincere thanks, through your valuable *Journal*, to the English bee-keepers I have had the pleasure of meeting during my stay in England, for their kindness and amiableness towards my brother-in-law, Mr. Estler, and myself. We shall never forget the days we spent in their company at the Kensington Show, and at the mansions and bee-farms of some of them. Whenever bee-keepers meet and talk on bees (which they always will do *à tout prix*) or visit one another's bee-farms, they always will (who can deny it?) learn from each other. Therefore, I hope I shall have also the benefit of my trip to England, and my brother bee-keepers in Germany too, as I shall endeavour to give a true account of what I have seen in regard of bee-keeping in England. Also I shall tell the bee-keepers in Germany what a hearty reception I found, and that our English brethren are far advanced in bee-keeping, are going on very fast on the way of progress, and agree with us in the love to that little diligent insect that always forms a kind of freemasonry between its admirers.—C. J. H. Gravenhorst, *Hope Cottage, Godfrey Hill, Woolwich, August*, 1879.

LATEST FROM MR. NEWMAN.

I had hoped to be able to call on you on my return to London, but find I cannot be there but a few hours before the steamship leaves for New York. I am exceedingly well pleased with my trip in Europe, and thank you for your many kindnesses to me. I have visited ten editors of Bee papers and thousands of the most eminent bee-masters, and have gleaned information which I hope to profit by myself as well as to assist my constituency to do the same. The very friendly feeling now existing between America and Europe I hope will increase and multiply a hundred-fold. Bee-masters, the world over, should be the most intimate friends. At Prague I had a most interesting time with Dr. Dzierzon, Herr Vogel, Herr Hilbert, Herr Karl Gatter, Signor Sartori, Prof. Palmerow, and many other gentlemen who are well known among apiarists. Also with the Baroness, the widow of the late Baron Berlepsch. She is a very intelligent and amiable lady, and one that is highly esteemed by apiarists generally.

With kindest regards, I beg to remain yours very truly,
T. G. Newman, *Dresden, Sept. 15th*, 1879.

FORTHCOMING SHOWS, 1879.

October 1st and *2nd*.—Hertfordshire County Association, Hemel Hempstead, Rev. H. R. Peel, Hon. Sec.

8th and *9th*.—Lincolnshire Bee-keepers' Association, in connexion with the Long Sutton Agricultural Society. Hon. Sec., R. R. Godfrey, Watergate, Grantham. Entries close October 4.

ENGAGEMENTS FOR THE BEE-TENT FOR 1879.

Oct. 1 and 2.—Hertfordshire County Bee-keepers' Show at Hemel Hempstead.

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee Meeting, held in the Board Room of the Society for the Prevention of Cruelty to Animals, 105 Jermyn Street, on Wednesday, September 10th. Present: Mr. T. W. Cowan (in the Chair), Rev. E. Bartrum, F. Cheshire, J. Hunter, J. M. Hooker, J. P. Jackson, W. O'B. Glennie (Treasurer), and Rev. H. R. Peel (Hon. Sec.) The minutes of the last meeting having been unanimously confirmed and signed, the Secretary read a letter received from the editor of the *Herts and Cambs Reporter*, inquiring as to whether any diagrams or sheets illustrating the honey-bee, as suitable for use in schools, &c., were published; and expressing the hope that the Association would undertake the publication of such sheets or diagrams. The question was discussed at great length by the Committee, the general opinion being that a great amount of knowledge might be spread in this way; ultimately, it was moved by the Chairman, and seconded by Mr. Jackson:—'That the Secretary be requested to make inquiries respecting the cost of publishing diagrams, and as to their being adopted by the various Educational Publishing Societies.'

The question of the publication of a small cheap pamphlet for the use of cottagers was again brought before the Committee, the Chairman of the last general meeting (Bishop Tozer) having pointed out the necessity of the Association publishing a work of this kind. On the motion of the Rev. E. Bartrum, it was unanimously resolved that Mr. Hunter and Mr. Cheshire should draw up a simple manual, and submit the same to the Committee, with the view to its publication. Mr. Jackson informed the Committee that he had the pure Cyprian bees, as exhibited by him at the South Kensington Show, and he would be glad to hand them over to the Association for the purpose of queen-raising for the benefit of members. A vote of thanks was awarded to Mr. Jackson for his handsome gift, and it was unanimously resolved that the bees should be placed in the hands of Mr. Cheshire, for the purpose of carrying out Mr. Jackson's wishes. It was arranged that the next quarterly meeting and conversazione should take place on Wednesday, October 15, at 446 Strand, the conversazione to commence at six o'clock. Subject for discussion—'Wintering Bees.' To be introduced by Mr. T. W. Cowan, of Horsham, Sussex.

The Balance Sheet for two months, ending August 30,

including the income and expenditure of the Kilburn and Kensington Shows, was read as follows:—

INCOME.	£	s.	d.
Amount received Jan. 1 to June 30 ...	187	12	7½
„ „ July 1 to Aug. 30 ...	201	11	6½
Total	£389	4	2

EXPENDITURE.	£	s.	d.
Amount expended Jan. 1 to June 30 ...	44	10	7
„ „ July 1 to Aug. 30 ...	293	5	8
Balance in hand	51	7	11
Total	£389	4	2

A BEE-KEEPERS' ASSOCIATION FOR THE MIDLAND COUNTIES.

From the 'Rugby Advertiser.'

A new feature in the Warwickshire Agricultural Society's Show at Atherstone this year was the visit of the tent of the British Bee-keepers' Association, in the charge of its able and entertaining expert, Mr. S. J. Baldwin. In one tent there was to be seen a fair display of hives and bee-furniture. For hives, Abbott Brothers, Southall, London, and Neighbour and Sons, of Regent Street, took the principal prizes. By the former was also exhibited an observatory hive stocked with combs, Ligurian bees, and their queen, in working order, which excited great interest and was much admired. Owing to the unfavourable season there was little honey shown, but there were admirable centrifugal honey extractors exhibited by Messrs. Abbott Brothers, and by Mr. J. Walton, of Weston, near Leamington, which were most ingeniously made for throwing honey out of combs without injuring them; so that combs might be replaced and thus the bees saved much time and strength, whilst in the tent lent by the British Association numerous manipulations were carried out on both days. About 650 people visited the tent, and great interest was evinced by the spectators, who made many inquiries during the operations. The names of all persons willing to help in the formation of a Warwickshire Bee-keepers' Association were solicited.

A meeting was held on Thursday at the Grand Hotel, Birmingham, for the purpose of establishing a Bee-keepers' Association for the Midland Counties. Amongst the gentlemen present were the Revs. Canon Evans (Rector of Solihull), H. R. Peel (hon. sec. of the British Bee-keepers' Association), and J. E. Sale (Dymock, Gloucester). —The Rev. Canon Evans was voted to the chair, and in opening the proceedings dwelt upon the happiness and pleasure, apart from considerations of profit, that were derived from bee-keeping. He had great pleasure in moving, 'That a bee-keepers' association be formed with the two-fold object of advocating a more humane and intelligent treatment of the honey-bee, and of bettering the condition of the cottagers of the United Kingdom by the encouragement, improvement, and advancement of bee-culture, and that the association be called "The Midland Counties' Bee-keepers' Association."' The Rev. H. R. Peel (late rector of Handsworth) seconded the resolution, and spoke of the need that existed amongst the cottager class for knowledge on the subject of bee-keeping. The Association in London, of which he was the secretary, was founded in 1874, and ever since then has been endeavouring to promote a more humane treatment of bees, principally by cottagers, but of course by all those who kept bees.

He maintained that by keeping bees, cottagers would be benefited both morally and financially, and, with regard to the latter point, mentioned that it had been estimated by those who had gone carefully into the subject, that an intelligent cottager could make 3*l.* out of every hive in a good season. The Americans were pouring tons of honey into this country, and trying their best to monopolise the whole of the English market, but their honey was not equal in flavour and purity to English honey, which, if its production were fostered by means of such associations as the one they were that day inaugurating, would easily stand its ground against American honey.—The resolution was carried.—The Chairman then proposed the election of Lord Leigh as president of the Association.—The Rev. Mr. Johnson seconded the resolution, which was unanimously adopted. —On the motion of the Chairman, seconded by the Rev. L. Randle, a committee was appointed empowered to elect vice-presidents and officers, and to draw up rules based upon the rules and regulations of the British Bee-keepers' Association.

[We trust that every bee-keeper in and near Warwickshire will rally round the standard here unfurled. James Noble Bower, Esq. of Knowle, Birmingham, or Alfred Sale, Esq. of Atherstone, Warwick, will give every possible information.—Ed.]

EAST OF SCOTLAND BEE-KEEPERS' SOCIETY.

As in former years, this Society held its chief Exhibition in connexion with that of the Dundee Horticultural Society. In spite of many misgivings and head-shakings, the Committee determined to go on with the Show as usual, and the result, though not elating, is certainly gratifying. There were only about forty entries of honey; but as this was chiefly in sectional form, and on the whole well finished, it was fitted in itself to make no mean display. Indeed, several of the exhibits could scarcely be excelled even in the best of seasons. The same remark applies to the samples of extracted honey—the prize glasses being equal to the best of former years. By dint of close attention and hard 'scranning' our friend, Richard M'Gregor, managed to get forward a very creditable glass of heather-honey, the only one in its class. He was also able to show a small super in heather-comb honey, also the only one in its class. The classes for hives and apparatus having been severely cut down in the last schedule, prizes only being offered for collections, there was not the quantity of miscellaneous gear, which cumbered floor and tables in former years. There were, however, very excellent samples of everything, and more than everything, needed in an apiary. The only exhibitor in this class was Mr. W. W. Young, of Perth, who tabled a collection of almost 150 different apiarian appliances. Although only a silver medal was offered, the Judges unanimously awarded 30*s.* to Mr. Young, in recognition of his industry and spirit.

The following is the prize list:—

Harvest from One Hive—3, Charles Carnegie, Marykirk, 28 lbs. Super, under 20 lbs. (4 entries)—2, John Reid, Ballindean; 3, Geo. Greig, Arbroath. Sectional Super, over 20 lbs.—2, J. H. Edwards, Fowlis; 3, Wm. Duke, Newbarns. Sectional Super, under 20 lbs. (6 entries)—1, Wm. Gibb, Littleour; 2, Wm. Duke, Newbarns; 3, Ch. Storrier, Lintrathen. Straw Super, over 10 lbs.—2, A. Watson, Milnathort. Straw Super, under 10 lbs.—3, W. Tarbat, Dunnichen. Heather Super—3, Richd. M'Gregor, Inchmarlo. Run Fruit Blossom Honey—1, John Reid; 2, J. H. Edwards. Run Clover Honey—1, C. Carnegie; 2, A. Watson; 3, T. Waters, Milnathort. Run Heather Honey—1, R. M'Gregor. 2 lbs. Wax—1, A. Watson; 2, T. Waters. Wax Comb Foundations—Wm. Raitt, Blairgowrie. Observatory Hives—1, John Stewart, Arbroath; 2, Mrs. Stewart. Nest of Humble Bees—R. Wilson, Kilmany. Best Collection of Apiarian Appliances, silver medal and special money prize—W. W. Young, Perth. Best Bar-frame Hive stocked with Bees—1, Eliza Warden, Monifieth; 2, W. W. Young, Perth. Driving Competition not yet decided, a protest having been entered by a competitor.

CALEDONIAN APIARIAN AND ENTOMOLOGICAL SOCIETY.

Minutes of Second Quarterly Meeting of the session, held in M'Innes' Temperance Hotel, 12 Hutcheson Street, Glasgow, on Wednesday, 17th September, 1879. Present — Messrs. Bennett, Ellis, Hutchison, Johnstone, Laughland, Sword, Wilkie, and Young. On the motion of Mr. Bennett, seconded by Mr. Sword, Mr. John Wilkie was called to the chair.

The minutes of last meeting were read and duly approved. The Treasurer read the Financial Report, which the meeting considered highly satisfactory, the income this year to date amounting to 112*l*. The office-bearers for 1879–80, nominated at last meeting, were duly elected. Mr. Ellis proposed that the thanks of the Society be awarded to the Judges at the Perth Show, and that the same be minuted, and an excerpt be sent to these gentlemen. Mr. Young, of Perth, was presented with the Society's silver cup for the best and largest display of bee-furniture, and the prize-money was thereafter paid.

An interesting discussion took place regarding the best means to be adopted for securing the bees during the coming winter, seeing there is so little honey in the hives at present. One gentleman stated that a neighbour of his had smoked three swarms, and had only got 2 lbs. of run honey from the whole. The meeting regretted that this barbarous custom was still in existence, notwithstanding all that had been written regarding it, and a *Bee Journal* having been in circulation for six years.

The meeting closed with a vote of thanks to the Chairman.

CALEDONIAN APIARIAN AND ENTOMOLOGICAL SOCIETY'S OBSERVATORY HIVE.

It is now a good few months since the Society's Observatory Hive and Bees took its first stand, to the delight of the many visitors who came to see the honey-bee at work. The following are amongst the principal places it has been this year. Its first place was the Royal Botanic Gardens and Crystal Art Palace, Glasgow. It stood there about a month, to the delight of the many thousands who flocked to see the busy movements of the honey-bee. The visitors to this place averaged between 10,000 and 12,000 weekly. Its next destination was to our show, which was held in Perth in connexion with the Highland and Agricultural Society's Show, on July 29th and three following days. Here, like the others, it did aid in keeping up the interest of the Show, and was greatly admired for its neatness and beauty. Its next place was the Dunoon Flower Show. Here it also greatly delighted the visitors, and caused a great amount of interest to be taken in it. It was next brought back to the Glasgow and West of Scotland Horticultural Society's Flower Show, which was held in the New St. Andrew's Halls, on Wednesday, the 3rd September. Here many of the visitors had to go away dissatisfied in waiting so long for their turn to see the bees, as the crowds who surrounded it during the entire day were something enormous. The visitors seemed almost as lively as the bees, in putting various questions regarding them, and everyone seemed greatly delighted in watching them busily working to and fro in their hive. There was a large turn-out of visitors at this Show, numbering between 8000 and 9000, and I have no doubt that if the weather had been more favourable there would have been a good number more. Its next and last place was the Gourock Flower Show, which was held in the Gamble Institute on Friday, the 19th September. Here, as at the other places, it created some interest, and was greatly admired by the many visitors who came to the show during the day.

I think that if every bee society would lend their aid in having an Observatory Hive, and as many more apicultural things as could be conveniently placed for exhibitions in all the flower shows which take place everywhere, it would cause a great deal more interest to be taken in them. And I am sure it would cause many more to commence bee-keeping, and it would bring it more before the public far better support than it has at present. You will notice from the above descriptions that Observatory Hives, &c. placed at shows and other places where such large audiences gather, that it is bound to bring the bee question under their notice, and to bring the subject more before the public. Our Observatory Hive seems to have caused a great amount of interest in every quarter that it has yet been placed, and many resolved after seeing it that they would commence bee-keeping at their earliest opportunity.—J. D. H.

DORCHESTER BEE AND HONEY SHOW.

The Annual Show of the Dorset Bee-keepers' Association took place this year at Dorchester, on August 21, in connexion with the Dorset County Horticultural Show. There was very great interest taken by the visitors, and considering the weather, which was damp under foot and wet over head some part of the time, the Bee Tent was very well patronised. The honey this year did not nearly come up to the quantity generally shown, but, considering the season, it was a very good show. Mr. Dunman showed 107 lbs. from five stocks. The heaviest quantity from one hive was 40 lbs. taken by Mr. Tilley of Dorchester, for which he was awarded the bronze medal given by the British Bee-keepers' Association. The silver medal given by the British Bee-keepers' Association was won by Mr. Dunman, of Troytown Farm, Dorchester. The honey was of not so good quality as usual, only heath honey being shown.

Mr. James A. Abbott attended the show as the expert, and very much surprised the people by his masterly way of handling the bees. The judges were, Rev. H. Everett of Dorchester, Mr. Abbott, Fairlawn, Southall, and Mr. Vatcher of Dorchester. Subjoined is the prize list.

Open to persons residing in the County of Dorset, or within six miles of its confines.—Class 1.—For the best hive for observatory purposes, all combs to be visible on both sides; to be exhibited stocked with bees and their queen—1, Mr. Brown, Maiden Newton; 2, Mr. Tilley, Dorchester.

Class 2.—For the largest and best exhibition of super honey from one apiary—1, W. H. Dunman, Troytown Farm; 2, equal, Mr. Tilley, Mr. Antell, Puddletown; 3, Mr. Dunman, Troytown.

Class 3.—For the best exhibition of honey in sectional supers, each section to be easily separable, and not to weigh more than 3 lbs.—1 and silver medal, W. H. Dunman; 2, Mr. Tilley; 3, Mr. Antell.

Class 4.—For the largest and best harvest of honey in the comb from one stock of bees, under any system or combination of systems—1 and bronze medal, Mr. Tilley, 40 lbs.; 2, Mr. W. H. Dunman, 25½ lbs.; 3, equal, Mr. W. H. Dunman, 24 lbs., Mr. Antell, 19½ lbs.

Class 5.—For the best exhibition of run or extracted honey in glasses—1, Withheld; 2, Mr. Stickland, Puddletown; 3, Mr. Dunman.

Cottagers Only.—Class 6.—For the largest and best harvest of honey in comb from one stock of bees—1, James Woodland, Troytown, 20½ lbs.; 2, Charles Sherren, Puddletown.

Class 7.—For the heaviest and best single super—1, James Woodland; 2, Charles Sherren.

Open to All.—Class 8.—For the best collection of hives and apicultural appliances—1, Mr. Abbott, Southall.

ARBROATH BEE AND HONEY SHOW.

The Annual Exhibition of the Arbroath Horticultural Society took place on the 29th and 30th of August last in the Public Hall and Picture Gallery. The weather was favourable on the whole, and large numbers of visitors were attracted to the show.

The Picture Gallery was chiefly occupied with fruits, cut flowers, and bee appliances. Of the latter there were more than we have seen at any former show. There was, however, but a poor display of this year's honey, owing to the bad season. The quality was inferior compared with that of last year, as shown by the specimens sent for exhibition. The only exception was a very fine sectional super belonging to Mr. Carnegie, Marykirk, which was well sealed and finished. This honey took the first prize. The collection of bee appliances was of the most complete kind. The exhibitor was Mr. W. W. Young, Perth. A prize was awarded to Mr. Young for a new invention in wax extractors. Two observatory hives were exhibited by Mr. Stewart, Letham Mill. They formed a considerable attraction to visitors.

At the dinner, held at the White Hart Hotel, Mr. Nicoll, Cemetery Lodge, said he was sorry the exhibits in the bee department had been so few this year. They had a very good display last year of bees, produce, and appliances. This year the display was mostly confined to appliances. He proposed the health of Mr. Kerr, the judge in this department.

Mr. Kerr remarked that bee-keeping was very naturally allied to horticulture, and it was right to exhibit the produce of the flowers along with the flowers themselves. Gardeners knew very well that bees were almost indispensable when their peaches were in bloom. A gentleman whose peaches were inferior this year lately stated to him that the reason was that the bees did not get out when they were in blossom because of the cold winds. Last year they were able to count their honey by hundredweights. This year he was afraid it would be counted by pounds. There was one very superior super in the show that day, which would scarcely be matched in Scotland. He had not seen this year anything to equal it, and if it were taken to Dundee next week it would go off A 1.

The prizes were, for bees, honey, hives, &c.—Best sectional super, over 20 lbs.—C. Carnegie, Marykirk. Best sectional super, under 20 lbs.—Wm. Keith, Colliston. Best single super—1, Geo. Greig, St. Mary Street; 2, Jas. Glen, 3 Fisheracre; 3, John Stewart, Anniston. Best 6 lbs. run honey—1, C. Carnegie; 2, John Davie, Waulkmills; 3, John Stewart, Letham Mill. 2 lbs. wax—1, John Stewart, Letham Mill; 2, John Davie. Six sheets artificial comb foundation—John Stewart, Letham Mill. Best observatory hive—1 and 2, John Stewart, Letham Mill. Best collection of bee appliances—W. W. Young, Perth. Any new invention, calculated in the opinion of the Judges to advance scientific bee-keeping—W. W. Young, for wax extractor. Special extra prize for large collection of bee appliances—W. W. Young.

CRAY VALLEY DISTRICT BRANCH OF THE BRITISH BEE-KEEPERS' ASSOCIATION.

At a general meeting to be held by the above Association on Tuesday, the 7th October, it will be considered if it is possible to form a County Association of the Bee-keepers in Kent. The Secretary, J. Garratt, Esq., St. Mary Cray, will be glad of the assistance of any one interested in the subject.

HERTFORD LABOURERS' FRIEND SOCIETY.

The seventeenth annual show of fruit, flowers, and vegetables, in connexion with the Hertford Labourers' Friend Society, was held in Messrs. Andrews' field, off Castle Street, on Thursday. Considering the season, the show was good. A nice collection of plants from Lord Townshend's and Baron Dimsdale's was of good service in ornamenting the centre of the tent. The tent of the Herts Bee-keepers' Association was on the ground, and several illustrations of the art of manipulating bees were given. There was a fair attendance. The prizes were distributed by Abel Smith, Esq., M.P.

BEE SHOW AT FALKIRK.

The Falkirk Horticultural Society this year provided in their schedule of prizes for an exhibition of bees, hives, and honey. There were not many competitors in the honey classes, but this was not to be wondered at considering the awful season. Mr. Walker carried off first prize in the super honey class, with a very fine box. Our old friend Sword came to the front with a very fine sample of 'run or extracted honey,' while Mr. Walker came second. Mr. Sword also exhibited a very fine stock of Ligurian bees in an Observatory Hive, and the queen could be easily observed depositing eggs all day long. This was a most interesting sight to those at the Show, and many ladies and gentlemen openly declared they had never before seen tame bees at work. Mr. Graham exerted himself wonderfully in pointing out her majesty, and answering the many curious questions asked. One lady inquired how it was possible to tame bees; Mr. Graham, in his own quaint way, replied by kindness, she appeared nonplussed. Messrs. Sword, Paterson, and Crosbie conducted the manipulations, which were carried on during a good portion of the day, to the wonder and amazement of great numbers who witnessed them. These practical demonstrations are undoubtedly the best aids to the formation of Bee Societies; and a nucleus having already been formed, a meeting will shortly be held to enrol all those interested in creating the Falkirk Branch of the Caledonian Apiarian and Entomological Society. Messrs. Bennett and Wilkie, who acted as judges, and were the guests of Mr. Sword, lent their aid in maintaining the interest of the meeting by showing how easy it is to transfer combs from straw skeps to bar-frame hives. The Committee earnestly wish all other branch societies every success.

BEES AT THE SOMERTON HORTICULTURAL SOCIETY'S SHOW.

The fifth annual exhibition of this Society was held on the 20th August, and for the first time bees were, by permission, introduced to the wonder and pleasure of the visitors who flocked in great numbers to the show. The manipulations were conducted by one of the Abbott Brothers, of Southall. The chief labour of instigating the bee show fell upon T. C. Head, Esq., to whom it was evidently a labour of love.

A BEE FARM.

Near the village of Beeton, county of South Simcoe, Ontario, Canada, there is a bee farm, which is probably one of the most extensive and successful things of the kind in the world. It consists of four bee-yards situate at the angles of a square which embraces several square miles of country. The current year, so far, has proved favourable for honey. Mr. D. A. Jones, the owner of the bee farm, had at the end of July already secured 50,000lbs. of honey from 620 stocks of bees. The *Canada Farmer* asserts that this statement is an absolute fact. Each yard covers about an acre of ground, carefully enclosed, and contains, besides the hives and summer store-rooms, a house for wintering the bees. The hives used are oblong, pine-wood boxes, with a cubic capacity of 3240 in.,

the inside measure being 15 by 18 by 12. Mr. Jones's four bee-yards contain 250, 150, 150, and 70 of such hives respectively, and he reckons 30,000 bees a good swarm for one of them. He expects a total yield for the year of 70,000lbs. of honey from his 19,000,000 little workers, in which case he would net between 7000 and 10,000 dols. for the year's product, without taking into account the sale of swarms or of queen-bees. This successful apiarist estimates the year's total outlay at 2100 dols., nearly half of which, however, is interest on capital which has grown up with the business.—*Times.*

AN ALARMING LABEL.

Mansion House.—Soon after the commencement of the business of the Court, Mr. Superintendent Foster handed to Alderman Sir Andrew Lusk, M.P., a portion of a package, bearing a label of which the following is a copy: 'Handle gently—dynamite—certain destruction.' These labels, he said, were frequently attached to packages imported into London.—The Alderman: I understand that several complaints have been made of this practice at the Court, and that some of the packages upon being examined were found to contain honey in glass cases. It is scandalous that this should be allowed, as it may lead to very serious consequences. Persons handling what they consider to be gunpowder day after day become less cautious than they ought to be, and so when the real article comes, and with the knocking about which the packages endure, an explosion may result. It is like the cry of 'wolf' when there is no wolf, and then, when the wolf comes the people are not on the alert. I think that if the misdirection to which my attention has been drawn does not come within the pale of the law the matter is one which the Customs should look into.—The Superintendent said that he drew the attention of the Court to the labels, because people, seeing these packages constantly being carried about and brought into populous places, naturally became very much alarmed and uncomfortable. Upon the premises of one firm he found a large number of these packages, which, as had been stated, contained boney.—The Alderman: Is that according to law?—The Superintendent: I am scarcely prepared to answer that.—The Alderman: Well, no; I expect not. However, the practice is one which is well calculated to create unnecessary alarm, and the Customs authorities ought to prevent it.—The Superintendent said, after the remarks of the Alderman, the practice would probably be stopped.

On the following day, Mr. B. Wontner, on behalf of Messrs. Thurber and Co., Cannon Street, said he desired to mention the matter again.—Alderman Lusk: Yes; it was a very proper thing for me to notice, and also for the newspapers.—Mr. Wontner: But, unfortunately, the newspapers have not noticed it in the right way. The matter was reported in the newspapers, and an article has appeared about it.—The Alderman: No doubt, it is very kind of you to try and teach the newspapers, but perhaps they will not take your instruction.—Mr. Wontner: But if the newspapers put in a statement which is calculated to do a grievous wrong?—The Alderman: Well, I cannot help that.—Mr. Wontner: Not if the thing is reported and reported wrongly?—The Alderman: I am not a censor of the press. They would not allow me to be so.—Mr. Wontner: I think if what occurred here was made public and the publicity damages persons—— The Alderman: I do not wish you to come here to advertise people, because I took great care not to mention names.—Mr. Wontner said he did not wish to mention names, only to call the attention of the Court to the fact that what was put in the newspapers was put in wrongly. A complaint was made that the word 'dynamite' was on a placard, and also the words 'certain destruction.' These were the only words which found their way into the newspapers. Mr. Wontner was proceeding to read a yellow label.—The Alderman (interrupting): It is all very well, but that is not the label which was brought here, and which I read.—Mr. Wontner: It is the only one used.—The Alderman: 'Handle gently—dynamite—certain destruction' were the only words on the label which was brought here.—Mr. Wontner: This label has them on.—Mr. Gresham (chief clerk): No, it is not the label, I can assure you.—The Alderman: You always speak to the purpose when you come here—is your complaint against me or against the newspapers?—Mr. Wontner: Well, as you, Sir Andrew, were the cause of the newspaper notices, I wish to draw your attention to the matter. Publicity was no doubt given upon the complaint of Mr. Superintendent Foster.—The Alderman: I did my duty as a magistrate sitting here when I commented as I did upon having such a placard, which it was stated was being extensively used, brought under my notice. I do not wonder at the newspapers taking up the matter. If you find fault with me do so, but if you are finding fault with the newspapers, I must refer you to them.—Mr. Wontner: Would you allow me to say this, without mentioning the names of any persons, that the placard is as follows:—— Mr. Gresham (chief clerk): No, you cannot do that. The Alderman says it is not the placard which was produced here. That one was on white paper, and there was no mention of honey at all.—The Alderman: No, I will not allow you to read. I do not want to know who the people are; they are very foolish people for using it. What I read and what I said about the placard which was brought under my notice was done in the course of my duty as a magistrate; and, if the newspapers have done wrong, write to them. The columns of the press, you know, are as open to you, or anyone else, just the same as the London Tavern.—Mr. Wontner: But, if it is open to some one to come here and make a statement, surely it ought to be open to others to come and contradict it —— The Alderman: I cannot allow you to go on. You have done your duty; and, if I have not done mine, write to the newspapers.—The parties then withdrew.

THE BEE-KEEPER'S GUIDE.

[BY OUR OWN BUSY-BEE MASTER.]

Bees dwell together in a community or kingdom—in fact, they are a sort of waxy-nation quite overlooked by Jenner—and their king is always a queen. Working bees are now known to be 'imperfect females,' the only perfect female being the queen herself. The plebeian bees are very loyal to her majesty, who is always attended by a numerous *sweet*. The queen-bee is the queen of the nursery legend, who 'was in the parlour eating bee-bread and honey.'

Bumble-bees are, as their name indicates, a species of bee-dle, whose duty it is to march about and keep the others in order.

The drones are the husbands of the workers, though they do very little towards assisting them in husbandry.

Spelling-bees are a species now seldom met with, and, indeed, are almost extinct in this country. Many people, however, were terribly stung by them when they first came over.

Musical bees are plentiful enough. Of this species, B sharp and B flat are the most common. All bees are attended by their own (yellow) bands.

Bees generally swarm when the weather's (s)warm enough, and they should never be teased, on account of their 'waxy' nature.

The scent from the poison of their stings during a fight excites others to immediate rage and action. They scent the battle from afar, and hasten to dis-sting-uish themselves.

The neck-taries of a bee are, of course, situated in its throat.

Bees are much cultivated in Scotland, where—to put it alphabetically—every Highlander has A B in his bonnet, and the 'drone of the bagpipes' (a species peculiar to the country) is a favourite with everybody.

Bees are interesting bee-ings. When they are hard at work making wax, it is an exhibition equal to the wax-works of Madame Tussaud. They are also peculiar for their cleanly habits—performing their ablutions and washing out their hives with honey-soap. They are good at buzziness, too, and always *cell* their honey and wax as soon as possible after they make it.

In spite of their intelligence, bees have never yet attempted to start a newspaper. When they do, it will probably be a comb-ic journal, remarkable for its stinging satire—a sort of *(F)honey Folks*, in fact.

The wonderful feats of the bee-featers at the Tower should be seen by all strangers to these most extraordinary sights of London.

To discover where bees '*hang out*,' it is only necessary to follow a bee-line.—*Funny Folks.*

BEE FLORA.

1. *Andromeda floribunda.*—Bees are very fond of this beautiful little shrub. It is in blossom in February, March, and April.

2. *Viburnum Tinus* (Laurustinus).—Valuable shrub to bee-keepers; blossoms in the winter and throughout the spring. Bees obtain honey and abundance of light-coloured pollen from it.

3. *Crocus* (Common Dutch Crocus).—One of the very earliest bee-flowers; blooms in February, March, and part of April. A useful mode of teaching bees to take artificial pollen is to place some in these flowers.

4. *Salix Caprœa* (Willow Palm).—The willows give an abundant supply of a bright yellow pollen during the months of March and April, of which the bees eagerly avail themselves.

5. *Ribes Sanguineum.*—This pretty shrub comes into blossom early in April and continues throughout May, during which time it is covered with bees collecting both honey and pollen.

6. *Limnanthes Douglasii.*—This pretty annual is delighted in by bees. They obtain honey and a yellowish pollen from it. It blooms in April and will last till the end of June.

7. *Cineraria Senecio.*—This flower is the bee-keeper's enemy. The bees are extremely fond of it, and come into greenhouses after it in the spring months, the greenhouse too often proving a bee-trap.

8. *Polyanthus Narcissus.*—In blossom for about three weeks in April; not a favourite flower with bees, though they occasionally visit it and obtain pollen of a yellow colour.

9. *Buxus sempervirens* (Common Box).—The box-tree affords the bees a supply of yellow pollen during the month of April.

10. *Leontodon Taraxacum* (Common Dandelion).—The dandelion may be said to be always in flower; but it is chiefly in April and May that the bees may be seen upon this flower collecting pollen of a brilliant orange colour.

11. *Anemone nemorosa* (Wood Anemone).—Lasts in flower during April and May. Bees may be found in the thickest woods gathering a white pollen from these flowers.

12. *Ranunculus Ficaria* (Lesser Celandine.)—Blooms from the beginning of March to the end of May. The bees obtain from it pollen of a bright yellow colour.

13. *Berberis Aquifolium* (Barberry).—A favourite with bees. Blossoms towards the end of April, and last three weeks. Produces honey and a bright yellow pollen.

14. *Amygdalus Persica* (Peach).—The peach (as does also the nectarine) yields an early supply of honey for rather more than a week in March or April.

15. *Ribes Grossularia* (Gooseberry).—In blossom for three weeks in April, when bees eagerly visit them. They yield a good supply of honey and pollen.

16. *Ribes rubrum* (Red Currant).—For a fortnight in April bees work on these bushes. They yield honey; the leaves, honey-dew.

17. *Ribes nigrum* (Black Currant).—An ever greater favourite with bees than the red currant. It affords honey and pollen for a fortnight in April.

18. *Pyrus communis* (Pear-tree).—For about ten days in May the pear-trees are a great resource for the bees.

19. *Pyrus Malus* (Apple).—For ten days in May this tree is much visited by bees. They obtain honey from it and immense quantities of a yellowish-coloured pollen.

20. *Pyrus Malus* (Crab Apple).—The apple blossoms for a fortnight in May, gives the bees a liberal supply of honey and pollen of a yellowish colour.

21. *Cerasus* (Cherry).—Gives honey and blooms for about ten days in May.

22. *Fragvaria Vesca* (Strawberry).—Strawberries bloom in May and through the first fortnight in June. Bees work much upon them, and get honey and quantities of a yellow pollen.

23. *Rubus Idœus* (Raspberry).—Raspberry bushes are most valuable to bees. They gather honey from them, and also a whitish pollen from the end of May well into July.

24. *Bellis perennis* (Daisy).—In bloom from March to November. The bees obtain honey and a yellowish pollen from daisies.

25. *Quercus Robur* (Common Oak).—Blooms in April or May, according to the season; lasts a fortnight. Bees obtain a yellow pollen from the catkins of the oak, also honey-dew from the leaves.

26. *Acer Pseudo-platanus* (Sycamore or Great Maple).—Blossoms in May, lasts nearly a month. Bees work early and late in these trees, and obtain from them large supplies of honey. The leaf-buds give propolis, the leaves honey-dew.

27. *Fraxinus excelsior* (Common Ash).—Ash-trees bloom in April or May, lasting about a fortnight. Bees visit them in large numbers.

28. *Cytisus Scoparius* (Common Broom).—Blooms in April and remains through June. Supplies honey and pollen.

29. *Brassica Cymosa* (Broccoli).—In bloom for about a fortnight in May. The bees get honey from it, also a yellow pollen.

30. *Cerasus Laurocerasus* (Common Laurel).—This shrub is a very great favourite with bees. It flowers for a fortnight in May. The bees also work on the back of the base of the leaves, where they obtain honey-dew.

31. *Rhododendron.*—Bees visit all rhododendrons more or less, but more especially early crimson ones. They obtain honey and pollen.

32. *Salvia officinalis* (Sage).—Blooms in June till nearly the end of July. Bees obtain honey from the sage and work much upon it.

33. *Arabis alpina* (Wall-cress).—This excellent bee-flower blooms chiefly in March, April, and May.

34. *Coronilla glauca* (Coronilla).—Blossoms in the winter up to June. Bees are very fond of this shrub. They obtain a whitish-coloured pollen from it.

35. *Mathiola incana* (Common Queen Stock).—Flowers through June. The bees obtain honey and a yellow pollen from stocks.

36. *Cheiranthus Cheiri* (Common Wall-flower).—A first-class bee-flower. In blossom throughout March, April, and May. The bees obtain honey from it, and pollen of a yellowish drab colour.

(*To be continued.*)

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be fully and faithfully recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

A TIMELY APPEAL.

THE LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION FOURTH EXHIBITION,

In conjunction with the Long Sutton Agricultural Society's Great Show.

FELLOW BEE-KEEPERS AND HELPERS IN THE WORK,—Will you kindly give prestige to the gathering at Long Sutton, on the 8th and 9th of October, by your presence, also your help in the shape of exhibits?—for allow me to intimate that in the present trying season it behoves all who are really interested in our great object to render every possible aid, and thus prevent the probability of a relaxation in the important work, which might tend to check the rapid progress made in bee culture during the past six years. Entries for the Exhibition will be received up to Saturday, October 4th.—R. R. GODFREY, *Hon. Sec., Grantham*, 1879.

WINTER LECTURES.

Allow me to suggest that the British Bee-keepers' Association should arrange with some of our leading bee-keepers to carry on the campaign during the winter months, by delivering lectures. So much work has been done for the advancement of apicultural science during the past few months—thanks to the influence, tact, and energy of our esteemed Honorary Secretary—that I believe it would be possible to find many volunteers. I am not preaching what I do not practise, for I have already arranged for my share of the work, which includes a general lecture for a literary institute, and another of a special character for a Farmers' Club, as well as an address to local bee-keepers for two counties at a *conversazione*.

How would it be to open a 'Volunteer Column,' to register the names of such gentlemen as will deliver lectures, or go and chat to cottagers in village school-rooms on the pleasures and profits of bee-keeping?

Allow me to suggest that the British Bee-keepers' Association should assist in this matter. In the summer they provide a bee-tent and expert. Could they not arrange with some gentleman to undertake a series of lectures for the winter in different parts of the country, his tour being regulated by the Honorary Secretary and district secretaries?

Another idea, and I have done for the present. We cannot all afford to purchase diagrams, &c., for the illustration of our lectures. Would it not be well to provide a few sets like those exhibited by Mr. Cheshire, or like those issued by the German Educational Department, for the use of volunteers? The Italian plates, which we all admire, and so many of us possess, are admirable for passing round a room while one is chatting about bees; but for a regular lecture large diagrams, that can be seen by all at once, are required. I shall be glad to subscribe my mite towards the cost.

A microscope or two, on a side-table, with some well-mounted objects, and a few cases containing specimens of the various kinds of bees and comb, pollen, wax-scales, propolis, &c., add much to the interest of an audience, and help wonderfully in the diffusion of knowledge.—LLONGBORTH.

ABBOTT'S PROPOSED FOUNDATION MACHINE (PAGE 96).

I am in the hope of your plan doing well, and I hope you have had a fair trial by this time with the wringing-machine; but I think you should try shoe-tacks, such as this I send. I think it will be the nearest thing you can get. I am sure it will be better than nails. I send you one, and if you think it will do, you can get them at any shoe-maker's shop. I think all bee-keepers should be obliged to you for it. Fine pine will do well for foundations, such as is used for picture-backs.—GEORGE COGHILL, *Monifieth, Dundee.*

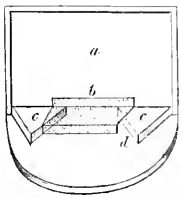
[We are obliged to our correspondent for the interest he evinces, and beg to assure him that his idea is exactly that which we had in our mind when we wrote as we did on the subject. Our chief difficulty has been in getting nails (or shoe-tacks) that are suitable; not that they are difficult to find, as regards size, but because they are so badly made as to make it impossible to drive them correctly. We have nails of the shape of the bottom of a sugar-loaf, five of which, side by side, measure an inch and a tenth: but the spike of them is not in the centre of one in a hundred, so our difficulty in driving them correctly can be readily understood. We have achieved small pieces of the foundation, and it is simply all that can be desired as such: but in larger sizes, the wax gets forced under the edges of the irregular nails, and cannot be drawn away. Nevertheless, having put our hand to the plough, it will have to work, for the idea is too good to be lightly tossed aside. Can any of our readers help us in obtaining sound, well-made shoe (or other) nails that will go six to the lineal inch, which would permit of their being driven without touching, and they would then bed fairly on the rollers, and leave the cell-walls of better thickness.—ED. *B. B. J.*]

MR. TENNY BRADDY'S BEE-TRAP.—PREVENTING ROBBING.

Mr. Braddy's method of emptying supers of the bees is excellent. Taking off one of Lee's supers, I made a flat tube of perforated zinc, about 4 inches long, and of a size to fit the slit. Drawing out a slide about an inch, the tube stands up like a chimney, and the bees pop out like Jacks-in-a-box, and none return by the way they came. This method of a tube does not, as far as I have tried it, do at all well for the mouth of a hive, where the foraging bees have to pass back again; and you cannot be always looking after them. A way I have is, I fancy, very superior. At mouth of hive,

I place two pieces of wood of triangular shape, ¾ inch thick, and some 3 or 4 inches long. Over this I place some perforated zinc, some 8 or 10 inches long, bent into this shape :—

That I put over the triangular bits of wood, as in woodcut. The zinc cover runs close against the triangular wood, *c*; but leaves ½-inch opening at *d*. The bees for a day or two are a little bothered to find entrance, but soon learn. The robbers not only have a bother also, but when once in the cage, and pursued by the guards inside, don't know the way out in their hurry, and so 'catch it hot' rather. Understand, that all these parts are loose, so that you can take them away, or arrange them any way you please.



a Hive front.
b a frame of perforated zinc.
c c wood blocks, triangular, and about an inch thick.
d is a passage left for the bees.

The hive in which is one of those queens you sent me is inserted, is the only hive that is really bringing in any quantity of pollen. They began the very day I uncaged the queen. Robbing has been terrible all yesterday; to-day they are quiet enough. Very little sealed honey in my supers: none worth taking. This part of the country is too much farmed—too much arable land.—J. Lawson Sisson, *Sept.* 4.

A NEW HIVE.

I have planned what I believe is a new species of bar-frame hive. I think, for simplicity, convenience, and economy, that it ought to be brought before the notice of bee-keepers. I propose that the frames should be triangular, perhaps equilateral, and that the inside measurement of the hive at the top should be 18 in. by 18 in., to hold twelve frames. The advantages of this hive seem to me to be these :—

1. Economy of making; four pieces of board only are necessary, and being strengthened by the legs at the corners, the hive will be firmer and stronger than the usual four-walled hive. The frames, too, will be easier to make than the usual four-sided ones. I propose that the side bars should be dovetailed into the top bar, and riveted through with a peg of wood or wire, which might project half-an-inch on one side, so as to form the distance peg. The bottoms of the side-bars being wrought together will naturally form a perfectly-shaped triangle, so that there would be no danger of lob-sided frames.

2. The need of a floor-board will be done away with, for I propose that the actual open space at the bottom should only be a long slit, one inch in width at most. There should be a narrow floor-board projecting one inch on one side, working on hinges, and fastened with hooks. In summer this might be opened slightly, so as to allow entrance and ventilation, along the whole length of the hive. The usual inconveniences of floor-boards would be done away with, for when the hive is to be cleaned, this alighting-board would be let down, and the sides of the hive could be cleaned by a long knife without exposing the whole bottom of the hive, as is usual in four-sided hives. As the exposure to the air and disturbance to the bees would be so slight, the hive could be constantly cleaned in the winter without risk to the bees; and, as the operation would be so simple, it would not be neglected as is now the case. When the bees are to travel, a long slit of perforated zinc would cover all the bottom and secure good ventilation.

3. The sloping walls of the hive would keep off rain from the hive, and so would conduce to dryness, also the direct rays of the sun could not beat on them. A double wall would, therefore, be needless in such a hive. The arrangements at the top could be as usual, with either a sheet-iron roof or wooden roof, with room for supers. Do you think it would be worth while to have a specimen made, and exhibit it at some bee-show as a cheap and handy hive for cottagers?—Edward Filleul.

[It is doubtful if there would be any economy of material in the above hive. Being 18 inches square at the top, and equilateral in section, it would have a capacity of about 2500 cubic inches; and supposing it to be made of inch material, the two sides 20 by 18 each, and the ends (together) 18 inches square, would require 1044 superficial inches of wood. Now, a Cottager's Standard, 17 inches long, 10½ deep, and 15 inches wide, to hold ten frames, would have a capacity of 2670 inches or thereabouts, and its sides, 19 by 10½ each; its front and back, 15 by 10 each; and its floor-board, 19 by 17; giving a total of 1022 superficial inches of material only. Taking these figures into account, and the fact that the 18-inch sides of the new hive would require to be jointed or filleted, for boards 18 inches wide are not found everywhere, the idea of economy is lost. Beyond this, there is the fact that such a hive must be furnished with a stand, for though a V will remain upright in print, it would require a double X to rest on if made of wood as suggested. The merits of such a hive were fully discussed in the first volume of the *Bee Journal*, page 159, Mr. S. Wyatt, of Tenbury, having been the inventor.—Ed.]

QUEEN ENCASEMENT EXTRAORDINARY.

On visiting the apiary of a friend we were making an examination of a cast that had come off ten days prior to my visit, to see if the queen had commenced laying; to our surprise there were no eggs, but the queen was firmly encased on a comb. We released her at the time, but on looking next day found her in the same state, and not able to fly; we removed her, and took the bees and queen from another cast, and joined them together. This last queen was well received, and commenced to lay at

once, and continued to do so for six weeks; but on looking to see how they were getting on, found they had also encased her. She had been laying up to within two days, as we found brood in three combs in all stages. We next took her out and examined her. To all appearance she was quite healthy, she was put back into the hive, but we found her lying in front of the hive dead two days afterwards. The bees were taken from this hive and joined to the one next to it, and a straw hive transferred and put in among the brood combs, which is doing well. The mystery does not end here. On inspecting another hive in the same apiary yesterday, we found the queen of that encased. She has been in this hive, at least for three years, and has plenty of hatching-brood, but no eggs or grubs. We put her into a cage, and will liberate her again to-morrow; I will send you the result.—JOHN WHITE, *Falkland, Fifeshire.*

BEE-KEEPING IN ESSEX.

The honey harvest of 1879 has just terminated, and it has determined what shall be recorded in the annals of bee-keeping for its protracted season. The results, I fear, will not prove very remunerative, for when the trees and flowers were in the gaiety of life the weather compelled the bees to remain in their hives, thus rendering it impossible for them to gather and store for their future use; and lack of income has (in many instances) caused the bees to devour their brood. In transferring the contents of six skeps to bar-frame hives the combs were found to contain little or no honey. Therefore, those who wish to make the 'best of it,' and save the poor bees being consigned to the sulphur-pit, will do well to feed them steadily with syrup, made thus:—2½ lbs. of sugar to 1 pint of water, boiled five minutes, adding a small quantity of vinegar and salt—and look forward to brighter prospects, and hope the worst has passed.—DAVID LING, *Rochford, August 28th.*

BEE-KEEPING IN FIFESHIRE.

I send you an account of bee-keeping in Fifeshire for 1879—the worst year in the memory of any bee-keeper living. This has been the only year since I commenced bee-keeping that my bees refused to swarm naturally. I started in spring with my hives, all in good order after the winter we had. On making an examination of the first hive that I opened, I found brood in two frames, all sealed, which must have been raised during the severest of the storm. I found brood in other two hives, all about the same stage, which clearly proves that bees can raise young brood without leaving the hive for a long time. They had been confined for two months, without having the chance of a cleansing flight. I commenced feeding as early as the weather would permit, in order that the hives might be full in time for the honey harvest that I expected would come. But my fond hopes have all been blasted, for not a drop of honey shall I get this year. I might have got a few pounds had I used the extractor. About the middle of June they were beginning to store some of the fruit-blossom honey, but it lasted so short a time that I considered they might as well keep all they had as the season had gone. I am glad that I let them keep it, as it has been the only honey they have got this year. I put supers on four hives, but only in one instance did they put anything into them. I got one super 21 lbs. gross, but as I suspected they were storing the syrup that I had given them, I declined sending it to any of the shows. The heather has been a failure so far as it has gone. Limes were spoilt with rain; plenty of white clover, but no honey in the flowers. I have got most of my hives ready for wintering, with the exception of a pound or two to keep up breeding. We bee-ings must live in hopes that 1880 will turn out a '78.—J. WHITE, *Falkland, Fifeshire.*

BEES AND THE SEASON.

To the Editor of the Times.

SIR,—Now that the honey season is drawing to a close, save in heather districts, I pen you a few running lines, as they may be of interest to your apiarian readers. As regards honey the results are absolutely *nil*; and in apiaries where the bees have to rely on the supply gathered during the summer matters are in a critical state indeed. I may remark, by way of illustration, that a case came under my observation a few days since, where in a large apiary the bees, not having been fed, were already perishing by thousands of starvation; and as this instance may in great measure be regarded as a fair criterion of the state of affairs at present existing in the majority of apiaries where artificial feeding has not been resorted to, it is obvious that unless stocks are fed liberally without loss of time, in order that the food may be sealed over air-tight in the combs to insure its keeping properties before the advent of cold weather, a vast number of stocks must perish of starvation even before the close of autumn. It is the same everywhere, save only in very exceptional localities, so few and far between that they may be counted on the tips of the fingers. Since feeding is now an imperative necessity, I would fain, with your courteous permission, draw the attention of those of your readers whose 'lines' are cast in districts removed

'Far from the madding crowd's ignoble strife,'

and who are interested in the apiarian pursuits of their poorer neighbours, cottagers, and others. To veteran bee-masters, thoroughly conversant with every branch of the science, I do not address myself, as they know better than any words of mine can tell them what to do in preparing their stocks for winter quarters in an adverse season like the present; but rather I pen these lines in the interest of the majority of rural bee-keepers whose ideas have not yet soared above the old single straw skep of their forefathers, and these are still in the majority, notwithstanding enlightened ideas on the subject sown broadcast throughout the land by the many associations that have

latterly sprung into existence for the improvement of the art among the masses, and the introduction of a more rational system of management; yet there is still much to do and a mountain of prejudice to level before the labourer learns to discard his beloved single straw skep in favour of the more manageable bar-frame hive. Of course, there are exceptions to this as to other things, and at bee shows held on various occasions at London and elsewhere, many of the first prizes awarded for honeycomb have been carried off by intelligent bee-keepers, whose avocations lie in the humbler walks of life.

I believe, judging from all that I have gathered from private correspondence and otherwise, that I am well within the mark in asserting that not one hive in fifty can possibly survive the winter if it is to exist in the meantime on the honey collected during the past sunless summer—a summer entirely without parallel in apiarian annals.

Among the many methods of artificial feeding now in vogue, there is none so simple and so easily understood by the veriest novice, and withal so readily obtainable, as the 'bottle apparatus.' With more elaborate systems I do not deal. For the information of those in remote districts, who do not know what the 'bottle apparatus' consists of, it may be briefly described as a wooden block about an inch in thickness by five inches in diameter, with a hole in the centre about two and a half inches in diameter, with a piece of perforated zinc, small pattern, tacked on to the under side. This is placed level on the hole on top of the skep or hive, and a wide-mouth bottle (an empty pickle bottle will do capitally for the purpose), previously filled with feeding syrup, with two thicknesses of cheeseware tied tightly over the mouth, is placed in the block inverted. The supply is thus just where it is most accessible to the bees, and when emptied the bottle may easily be replenished and returned. It should be covered over while in use; a spare hive placed over it, with a little packing at the junction, will prevent the scent escaping, and so alluring robber bees to the spot. Care should be taken not to spill any about the hives, else fighting would ensue, for, 'when bees do take to bad courses, they do it very effectually.'

An eminent authority on the subject is strongly in favour of 'slow feeding,' after the first bottle or so is given, in order that the bees may not in their eagerness fill up the central combs in the brood-nest to the exclusion of brood, as young bees are necessary to carry on the labours of the hive during the winter months, and slow feeding induces oviposition. On the other hand, others of equal weight, among whom may be mentioned a well-known American writer, are in favour of rapid autumn feeding. The latter I have invariably adopted, and with the best results. Of course, if slow feeding be desired, the number of holes in the zinc may be reduced at will by simply covering them with a thin layer of beeswax, laid on with a brush, through which the holes, whether few or many, may be punctured with a pin. The zinc, it may be mentioned, should be bent slightly upwards, convexedly, when first tacked on to the block, in order to fit the covering of the bottle, which is apt to become concave, when the vacuum between would prevent the bees reaching it.

Some prefer sugar-loaf for feeding, but the best refined moist will answer equally as well. Raw sugar is more liable to fermentation, and therefore objectionable. In preparing syrup it is merely necessary to pour boiling water on it, stirring it until it is thoroughly dissolved; when cold it is fit for use. A pinch of salt is usually added. The consistency should be slightly thinner than that of new honey; if too much water be added in dissolving it, the bees are put to unnecessary labour in evaporating the superfluous moisture before it can be sealed over for winter use. Where a stock is completely destitute of honey, as is the case with nearly all at present, 18 lbs. to 20 lbs. should be given to insure it against all possibility of starvation by the time the spring again returns.

I may observe, in conclusion, that I have at various times used almost every description of feeding appliances, and discarded them all in favour of the above; and having never lost a hive from starvation, and with rarely a dysenteric stain on the floor-board in winter, I can, therefore, confidently recommend its adoption to others.

It is almost superfluous to add that the above plan of feeding bees should not be resorted to in the winter months, as bees are then for the most part in a semi-dormant condition, and so unable from their enforced inactivity to avail themselves of it if they would. At that season, barley-sugar, administered in small quantities, is much to be preferred.—I am, Sir, your obedient servant, ALFRED RUSBRIDGE, *The Apiary, Sidlesham, Chichester, Aug.* 29.

BEE-KEEPING IN SWITZERLAND.

The question of bee-farming having again come to the surface, we may be forgiven for commending the Swiss example to English householders. Bee-keeping is conducted with great energy and success in some districts of Switzerland—honey, real or adulterated, being regarded as a necessity at the Swiss breakfast-table. Indeed, we conceive that the Allemannic fathers must have broken their fast with honey, for the use prevails in every district peopled by them, and the honey-jar is as invariable an accompaniment of the first morning meal in Offenburg as in Zurich, in Baden as in Switzerland. For the last few years, the Association of Swiss Friends of the Bee ('Bienen-Freunde') has instituted an annual course of instruction in the science and method of bee-keeping. The course consists of eight lessons, and is delivered each year in a different part of Switzerland, usually in a district where bee-keeping has become, or is becoming, an important branch of trade. The lecturer for the present year met his pupils at Rheinfelden, from the 6th to the 13th of July last, and all persons coming from a distant part were lodged and boarded at a moderate tariff in one of the many hotels of that charming old Rhenish town. Each pupil received a copy of the excellent 'Lehrbuch'

of the association, a manual which has resulted from the combined experience of a committee of experts. Hitherto nearly all the scholars have been women, as the care of the beehives must fall under the jurisdiction of the wife or daughters of a house. There can be no question that bee-keeping in Switzerland owes much of its success to the efforts of the 'Friends of the Bee.'—*The Globe.*

THE SEASON IN RENFREWSHIRE.

What a season it has been for our poor bees, as well as other things! I have removed no supers yet. There is little in them, saving empty combs, I fear. We had had a fairish fortnight on the limes, the bees working on them, even through the rains; but nights so cold, they have preferred storing in bodies to more outlying supers. My strong colonies have had nothing all the summer, and a stout country boy—my assistant—can't lift them. Swarms and young stocks have had to be fed a little all through, but have made up in population in consequence, and I expect them to go into winter quarters a better lot even than last year.—A RENFREWSHIRE BEE-KEEPER.

BEE-KEEPING IN SHEFFIELD, AND IN GENERAL.

We in this district, with the heather some ten miles distant from us, have continued to hope that the miserable experience of the summer might be reversed by a finer autumn; and many bee-keepers, including myself, have had their bees on the moors since the middle of August. It is satisfactory to know, that to a certain extent our hopes have been realised by the somewhat improved state of the weather during the past few weeks. To some extent only, however, is this true, the strongest stocks not having collected a sufficient supply of food to carry them through the winter.

It is to be hoped that your advice, given in last month's *Journal*, to feed the bees liberally, may be followed without delay. Bee-keepers need not doubt but that their stocks will perish ere summer returns, if they fail in this respect, the state of the weather having made it impossible for the bees to store honey, not excepting those situated in the most favoured districts probably. The question is, what is to be done by those who in these times of pecuniary depression cannot afford to spend a few shillings in buying sugar for their bees? A contemporary has, I notice, an article suggesting that those who have the means should provide the sugar for their poorer neighbours, on the condition of receiving the first swarm of next year as an equivalent. That is, I think, a very good suggestion; but some people would be chary about carrying it out, from the doubt which exists as to the fulfilment of the second clause in the agreement—the bees *might* perish from other causes, or the parties *might* 'flit' with the bird (or bees) in hand, leaving the mortgagee with no great prospect of getting his (swarm) out of the bush. Still, where there are objections of this kind, the principle might be carried out by buying some of the hives 'out and out.' It would certainly be better for a cottager to sell some of his stocks, even at a sacrifice in price, whereby he would obtain the money to enable him to start next year with the remaining ones in prime condition, than to risk the whole unprovided for, and lose them. We may take, for example, the case of a bee-keeper with six hives of bees, and without the means of feeding them. Let him dispose of two of these, although at some loss, and reduce the remaining four to two, by uniting them. About 16lbs. of sugar (boiled as you directed last month) will feed them well (I am writing of skeps), at a cost of some 4*s.* each. Thus cared for, and with large populations, such hives would be in capital condition. It is, no doubt, far from agreeable to have to reduce one's stocks in this manner; but what experienced bee-keeper would not rather own the two thus treated than the six left to shift for themselves? Without some such steps as these, the loss of bee-life during the winter and spring will be enormous, and it will fall in most cases upon people ill able to bear it. The loan of the *Journal*, and a little timely advice and assistance, might do much to ameliorate this state of things.—J. J. HOUNSFIELD, *20th September.*

A CAUTION TO AMATEUR BEE-KEEPERS.

Permit me to relate an incident that occurred about the end of August. One of our amateurs, thinking that his bees were not coming up to his expectations with regard to swarming, though they made a false alarm one day, but it turned out they were just out on the spree, as they all went back, and appeared none the worse; but our hero was sadly disappointed. Nothing daunted, however, he swarmed them artificially; and, so far, all went well. He next got it into his head that the parent hive was wrong; but it being a straw skep he could not find out what was the matter; so he determined to make a transfer from the straw to a frame hive, as the weather had the appearance of being fine. He started, and managed to get the bees out of the old skep; he next cut the combs out of his hives to fix them into frames, and having nearly finished his job he was surprised to see his garden swarming with bees. The Italian brigands were the first to scent the sweets, and were pouring by the thousand; next came their darker cousins, not so keen in their sense of smell, but as sure when once they got the scent. The streets on their route from the different apiaries were swarming with bees. They were trying every door: tailors had to leave their shops; grocers were obliged to shut their doors for a time; even the chubby-faced urchin of three or four summers, sauntering about the streets with his piece of scone and treacle, had to fly for shelter. But I must here return to the hive. By the time he got the last frame filled the hive was choke-full of strange bees, which could not be faced. So our friend next tried to get in his own, but it was no use. They had to be content to lie on the grass until the plunderers were satisfied that nothing more could be removed. In

the interval he removed the plate, with the paring of the combs, into his house; but in the bustle forgetting to close the door, the place got filled. Unfortunately the windows would not open, and as bees and bee-ings could not live peaceably together, he reluctantly had to apply the brimstone and bellows. On speaking to him about the way he had managed, he was sadly lamenting the loss of his hive, but appeared to take no notice of the other hives he had nearly ruined. I firmly believe he will manage better the next time he transfers.—J. W., *Falkland*.

FEEDING.

Your hints in the August number of the *Journal* as to feeding in good time, I attended to with a result which seemed to me to involve no end of expenditure. In my Neighbour's straw hive, which has not swarmed, I placed half a quart bottle of the syrup made according to your receipt, and the other half to my bar-hive, which swarmed the end of July, on Tuesday last. On inspection at night, every drop of these contributions had disappeared. Yesterday morning another quart bottle was supplied to these hives; the whole had been taken in by the bees in each hive this morning. On reading an article in the *Times* of yesterday, this morning, entitled 'Bees and the Season,' recommending such syrup as you give in the *Leaflet*. The following extract states: 'When a stock is completely destitute of honey, as is the case with nearly all at present, 18 lbs. to 20 lbs. should be given to insure it against all possibility of starvation by the time spring again returns.' Now, as my bees have consumed 10 lbs. of the sugar syrup in two nights and days, I conclude it must have been stored by them and a small portion only consumed. Shall I be safe in at once doubling the allowance already given?—C. L., *Cirencester, September* 4, 1879.

[It will be quite safe to double the allowance provided the condition of the hive is satisfactory as regards young bees. If there are plenty of them rapid feeding may not do much harm, but where they are comparatively scarce slow feeding is more desirable, as it will tend to induce breeding. If the bees were to be fed at the rate of 2½ lbs. of syrup per diem for many days, they would so fill their cells with the food, that it would be impossible for them (the bees) to occupy them as they ought to do, to form a compact mass for ensuring warmth in winter, and many of them would therefore be compelled to inhabit the spaces between the full combs, and being thus separated from the main body, thousands would soon die of cold or dysentery.—Ed.]

APPLICATION OF ELECTRICITY.

'Electricity Applied to Bee-rearing.—A correspondent of the *Deutsche Presse* describes a method which he has adopted with success of overcoming the obstacles frequently presented to the rearer of bees by the self-will of those interesting and profitable insects. This is no other than giving them an electric shock. Every one interested in bees knows the difficulties and dangers involved in hiving a swarm. One is often seen on a hot day in June in the top branches of a tree not to be climbed, and another in some inaccessible place seems to be preparing to set out on its wanderings. If the bee-master venture to approach, all his dexterity and experience will often not prevent him from being seriously stung. There are, indeed, several cases on record of death supervening from the stings inflicted on such occasions. Herr Friewirth, the correspondent referred to, hit upon the idea of employing the electric force to stupefy the bees. Trials on large and small clusters, and even on single insects, answered perfectly; the bees coming in contact with the conducting wires fell stunned and motionless to the ground. They were then sorted and marked, according to the strength of the current applied. The time required for their recovery, varying from ten minutes to eight hours, was proportionate to the strength of the shock, but all came out of their trance safe and sound. Encouraged by the result of this experiment, Herr Friewirth resolved to try it on a larger scale, namely, on bees in the hive. To this end he introduced the ends of two conducting wires into a fully occupied honeycomb, and turned on the current for a moment; the bees soon lay on the ground, and it was half an hour before they resumed activity. Herr Freiwirth then constructed an apparatus in a small box, six inches each way, which, similar to a cartridge pouch, he wore with a strap round his body. The two wires of the apparatus were, when required to be used, fastened to rods of a suitable length, the wires, of course, always projecting over the ends of the rods. These ends were then applied to the swarm, a knob similar to that employed for a room-telegraph being attached to the apparatus, that the current might be turned on at the proper time. Every one is, of course, not skilful enough to construct such an apparatus, though none are precluded from doing so, as Herr Freiwirth has not patented it.'

I fancy the above is a step in the right direction. I cut it from the *Evening Standard*, September 11, 1879. I was greatly pleased with your article (and idea) on page 95 of *B. B. J.*, September 1, 1879. Some years ago, when I believed in bees, and spent over 200*l.* on them—which I did—among other experiments I cut a frame through and covered it with tissue-paper (or, rather, large sheets of foreign post), placed it in between the two halves of the frame, damped the paper, and after screwing it up tightly and making it hot, brushed the paper, which was as tight as a drum-head, over with boiling wax. This frame I introduced into a full hive of bees, who immediately ate it into little bits, similar to, only much smaller than, paper chewed up by mice. It never occurred to me to substitute wood for paper, and I gave it up as a bad job and thought no more of the matter. This year I have done nothing with or to my bees, and the result is almost all my stocks have died. The only year they really flourished was when I fed them through *one* hole *continuously*, but I used up over half-a-ton of sugar (common lump at 28*l.* per ton), and as I never sold an ounce of honey in my life, I cannot say that I have made a large fortune by the transaction. I hope you have been pretty successful this year, *i.e.* that your bees have done as well as could be expected.—S. Wyatt.

SAVING BEE LIFE.

I have been asked again and again, 'How can I get bees out of my greenhouse or window' (as the case may be) 'without being stung in the process?' Nothing is more simple; but as my *modus operandi* has not yet appeared in print to the best of my belief, I will describe it for the benefit of those whose queries I have not had time to answer. Get an empty match-box (one of the little three-a-penny

'Standstickers' will do), push the drawer half-way open with the thumb, and place its open part over the bee on the glass; then close it up with the bee inside, and liberate it out of doors by simply pushing it open again. I save the lives of some thousands of bees yearly in my greenhouse and elsewhere by this method. Bees are very apt to enter greenhouses in the early spring time, being attracted by the genial warmth.—ALFRED RUSBRIDGE, *Aug.* 30, 1879.

WAX-MOTHS.

I have been looking at a straw hive in my bee-shed (which will hold ten hives), in which when I took the supers off I saw some moth-flies, and on searching further found the hive full of cobwebs and caterpillars, so that the passages between the combs were stopped, and I do not think that there were 100 bees left, but there were 1000 caterpillars instead, which are no profit, as they eat the honey and kill the bees. This was my strongest old stock, and stood all last winter and spring without feeding, and sent out a good swarm on June 14, which I put in a bar-frame hive, and they are doing as well as the season will let them; a cast also on June 25 from the same hive. I put a wooden bar-frame super on about the 20th of July, for they seemed strong, and I have seen, now and then, a moth-fly about the bee-shed, but did not think that they would hurt the bees, but I see that they have done so. I have sent a tin with some of the moths alive, and some of the web that they made in the hive, with a nest of their eggs; and the caterpillars as I call them—for I do not know what to call them—for I never saw any like them before in a bee-hive. G. H. COOK, *Redbourn, Herts, Sept.* 25.

GLOVES FOR HANDLING BEES.

I may have mentioned before that I have tried a good many kinds of gloves for bee-handling, including a pair of india-rubber I got either from you or Mr. Neighbour, I forget which. I found none half so good as the following, which I have used for more than twelve months. Take a pair of white cotton servant's gloves, and sew on a continuation of cloth, or an old leg of a stocking, to draw up to elbow; pull on over these a pair of light, easy-fitting worsted gloves. Your hands keep cool; you can feel anything through them; no sting will penetrate, and no bees are done to death by their stings remaining in.—A. W. M.

A DOG KILLED.—BEES DESERTING THEIR HIVE.

First—An old dog (who has been, I may say, the constant companion of my bees all his life) was done to death in the following manner:—He was chained up to a fence some yards from an old stock hive in a straw skep. A great number of bees settled upon him, and so stung him that he jumped the fence and was strangled by hanging from the chain. The only reason I can give for this bad display upon the part of the bees was, that they were irritated by robbing which has taken place with some of the hives.

Second—The whole of the bees from a stock skep last week entirely left it, going away. Upon lifting I found it quite perfect, but not one drop of honey in any of the cells. I have since commenced to feed all bees. I fear that unless others do the same very few will survive the winter.—G. S.

[There is little doubt but that the stinging of the dog was caused in the same way that the death of a hen and chickens was brought about. The bees were made angry, and vented their spleen upon the only living thing they could find.

The desertion of the hive by the bees is not at all an uncommon occurrence in seasons like the present. We have warned our readers, time after time, of the consequences of neglecting to feed their bees, but it is like preaching to the deaf in many instances.—ED.]

UNITING BEES.

May I ask for a reply some day in your *Journal* to the following question? Reply to Query No. 325 in September No. touches my difficulty, but does not remove it entirely. Do you mean that you simply remove each frame, brushing or shaking off each comb till nothing but bees are left, and that you then shake one into the other?

My plan hitherto has been to take each frame and shake or brush contents of each into a separate skep, and then unite. But my difficulty in so doing is, that half or more of the bees rise into the air, and you get a large part unaffected by your syrup, while of the removed hive a great many go away altogether, as the hive being taken away, and the bees not touched by syrup, they make for their old place and so are destroyed.

Does your plan by brushing them each into their own hive prevent their rising, as I have described? I fancy that you put your distance necessary for uniting stocks rather too far. I united two this year successfully not more than a quarter of a mile apart.—G. A. R., *Cambridge Lodge, Southsea.*

[Please refer to article headed 'Uniting,' p. 110.—ED.]

FUN AT THE PLYMOUTH BEE-SHOW.

Let me copy out a portion of a letter received this morning, from a Devonshir efriend, who went to the Plymouth Bee Show. You may use the passage if you like in the October *Journal*:

'The tent was larger, and more space allotted to the *sanctum sanctorum* where the manipulations were carried on. There were no competitions; but Baldwin drove, transferred, lectured, and chaffed admirably, the latter especially. There was great fun between him and an old Devonshire "varmer," as he would call himself, who had kept (and smothered) bees "vor a matter o' vorty year." He dropped various hints, to the effect that Baldwin had anointed himself well with vinegar, in order to escape being stung. These hints were not noticed till, grown bold, he asked B. in a loud voice what particular sort of vinegar he recommended. Baldwin's reply brought down the house: "In your case, sir, I should recommend a little yellow soap."'

SLINGING MACHINES.—Of slinging-machines my friend says:—

'I need not say, that not one person in a hundred had

ever before seen anything like them. One lady asked me what the machine was for. "For slinging out the honey, madam." "How very interesting! Do they put the flowers in there?"'

Edingthorpe Rectory, N. Walsham. J. L. SISSON.

AN AGED STOCK.

Somewhere between twenty-two and twenty-five years since, a farmer in one of the low-lying districts of Forfarshire, being desirous of adding bees to his other live stock, fitted up a place in the garret of his farmhouse, below the cupple-wings, immediately behind the eave, providing a tunnel from below the eave, through the thickness of the wall, to the box inside. This box in which the bees were intended to work would be about the capacity of about three ordinary bar-frame hives. Having made these arrangements, the farmer put a swarm of bees inside the box, fastened it up, and from that time to the 26th of July last the box has never been opened or anything whatever done with the bees, except that in the early part of this season the tunnel entrance was cleared out, and a great quantity of *débris* of dead bees, &c. cleared out. The farmer, though entirely ignorant of the practical management of bees, has always kept an eye on their movements. He states, that from the time the bees were put into the box they have wrought regularly every season. He is not aware that any swarms have left the hive, or that any from a distance have joined it; though it is possible both may have happened, seeing the hive is situated at the top of a pretty high two-storied house.

During the early part of this summer, the farmer, seeing his bees working strongly, took a fancy to have the condition of his hive examined. Not caring to make the examination himself he got a friend more accustomed to the work to act for him. On removing the covering from the back part of the box, a densely-packed mass of comb appeared, showing a face of about two feet square; not certainly in the regular arrangement of a bar-frame hive, but twisted about in every direction, some of the combs being four inches thick. The whole mass of comb, from top to bottom, was in most excellent order—patches of brood, blocks of honey-comb sealed (last year's gathering) as well as unsealed, evidently of recent deposit, pieces of empty comb, from which the young brood had recently gone; but all as clean and trim as the most advanced bee-keeper could desire even in a hive a few months old.

Large as was the capacity of the hive, it was fully stocked with bees, frequent application of smoke being required to keep them back till the examination was made. The farmer having a kindly regard to his old tenants, would allow no further disturbance than to take away the accumulated waste from the floor of the box, remove a small block of honey-comb for a sample of their work, and to place a few small sectional supers on the top of the hive. Had such a hive been properly manipulated last year, a wonderful weight of honey might have been obtained. It is worthy of notice, that though the bees had found means of egress from their box into the open part of the garret, which, by the way, is entirely unused, and scarcely ever visited by any one, they have not taken any advantage of it, but confined themselves to their box.—N.

FOUL BROOD (?)

Many thanks for your kind answer respecting foul brood, and I am sorry the sample of comb arrived in such a messy condition. I quite forgot to make the box water-tight. I am troubling you again on the subject, as I cannot help thinking that you have not examined the comb closely enough. I forwarded, at the same time as I did to you, a piece of the same comb to the *Journal of Horticulture*, and I have their answer in an August number that it is an evident case of foul brood; consequently I am rather puzzled between the two different answers. I enclose herewith a cell containing some of the same matter, which I am under suspicion is foul brood; and I am certain the comb I sent you contained some of the same matter. Will you kindly examine into this again, and if not troubling you too much, let me know, per post, your opinion? I have six hives, all bar-frame; but one of them I know to be queenless, with very few bees, which hive I intend to break up before the winter. I am rather afraid that three hives are affected; but I have two very healthy ones. Thanking you in advance for your kind attention to this matter.—W. A. KIRCHMER, *Upper Tooting, Surrey.*

[The 'cell' arrived smashed, as was the piece of comb-honey taken from the super, which formed the previous subject of inquiry. We are naturally sorry to find our opinion at variance with that put forth in the *Journal of Horticulture*, because it shows that one or the other was given without due consideration, or a proper understanding of the case. To our mind the thing was in a nutshell. Here was a stock of bees, in one of the worst seasons ever known, so strong that it had filled a super, after having bred in it; and yet it has been condemned as containing foul brood. The person who wrote the reply in our contemporary ought to study the nature of foul-brood, and its effect on hive-populations ere he puts forth such statements. A hive afflicted with foul brood would be scarcely likely to 'take to' a super in such a season, let alone the filling it with comb and honey; and as for the discoloured matter and the dark cells, they are simply the effect of breeding and storing pollen, the latter having been mashed up with honey. We felt so sure of the ground we had taken, that we asked for a large piece of comb from the brood-nest; but as our correspondent has not responded to our call, we can only suppose he is satisfied with our explanation.—ED.]

A VISIT TO MR. J. WALTON'S APIARY.

Though I have had small opportunity to write about our little favourites the bees, yet I have continued to be a regular subscriber and reader of the *Bee Journal*, and rejoiced to see how well it maintains its character of being foremost in giving publicity to all improvements, and the best advice as to management in the very trying seasons we have experienced of late. These bad seasons following one upon another, would certainly have made me bankrupt in the matter of bees last winter, if I had not followed the directions there given; instead of which I pulled my three stocks safely through, and but for an oversight of one in the spring, I should have been able to take early swarms from each of them. My experience of bee-keeping goes back to 1860; and I only remember

one such summer as the present, and that was the year I commenced, which was, if anything, worse than the one we are enjoying, though the spring was more favourable. This wretchedly bad season was, however, followed by some exceptionally good ones; when, with only the small knowledge I then possessed, which was mainly to keep all my stocks strong, I managed to fill all my wife's jars with honey, and nearly a large washing-pan besides. I say this so that young beginners may not lose heart, for brighter skies will come again to gladden both bees and their owners; and with the knowledge now gained, and the superior appliances to be obtained, golden opportunities will be opened to those who persevere and apply them. Impressed with this idea, I went a few weeks ago to see our worthy friend, and your able contributor, Mr. John Walton, of Weston; and well I was repaid for my visit, as I had an opportunity of seeing what can be done with comb foundation in this most trying and difficult season.

Mr. Walton's apiary is as well situated, in many respects, as could be desired: from ten to twelve acres of beans being in full flower, within easy reach of his bees at the time of my visit, the air being redolent with their sweetness, and only fine weather needed to give the bees opportunity to gather in abundance, which, alas! would not come. The space devoted to the bees seemed small in proportion to the number of stocks, being, I should think, not less than forty, and consisted of three or four kinds, viz. the common black bee, Ligurians of pure race, and hybrids from these, and what was to me a new variety, which I think he described as Carniolians. These last resembled the black bee more than Ligurians, the only difference seemed to be that the abdominal rings were more distinctly marked with grey or ash colour. The principal recommendation given to these is their gentleness, which, if equal or superior to those Ligurians I had from you, is no small recommendation, as those wanted no tobacco or other smoke to make them manageable, the simple and speedy removal of the quilt being all sufficient.

The most important lesson to me of my visit was the evidence I saw of what can be done, even in a bad season, by the use of comb foundation. In one swarm of this year, which Mr. Walton opened to show me, I saw beautiful fresh comb, built as regular as line and rule, and the whole hive—Woodbury size—nearly full, with plenty of sealed brood; the whole built entirely from foundation this season, and all, or nearly all, worker-cells. Of course this could not be done in such a season as we have had without liberal feeding. Raitt's foundation was the kind used; and nothing I think could be better or more useful than this invention to bee-keepers.

As the manner of fixing the comb-foundation, as practised by Mr. Walton, has not been described in the *Journal*, so far as I am aware, it will, perhaps, be as well to state it here. It is simply to place a piece of board the same size as the inside of the frame, and a little less than half its thickness, inside the frame itself, laying the sheet of foundation on it, and by simply passing a flat brush, dipped in melted wax, along the upper edge, and turning round and repeating this process on the other side, the thing is done at once, and securely fixed.

A few days before my visit to Mr. Walton, I found a second swarm of my own had lost its queen, and having no ripe cells, I asked him if he could help me out with one, or a superfluous Ligurian or hybrid queen, and he very generously gave me a young hybrid queen, which he took from a nucleus-hive, of which he had several with a few young bees to take care of her. This, when I returned home, the queenless swarm gladly received, with all her retainers, and some time after on opening the hive, I found brood in nearly all stages. I have since seen a few young bees issuing from this hive, who do not seem to have, however, any Ligurian marks upon them, but look more like the Carniolians. Possibly the queen was fertilised by a drone of that kind. Should such have been the case, it will be interesting to note their behaviour, as if there be any value in cross-breeding, they ought to be worth keeping.

And here let me say, that with the varieties possessed by Mr. Walton, swarms obtained from him would have every advantage which can accrue from cross fertilisation, though, as I saw, he can raise queens of pure Ligurian breed, these can be had, if desired. Mr. Walton also showed me, with just pride, a beautiful glass of super-honey in the comb obtained last season, and the medals and certificates obtained at various shows. One of the purposes of my visit was to see his extractor, advertised, with illustrations, some time ago in the *Journal*, and without disparaging what others have done in this line, I must say this seemed admirably adapted for the purpose, and calculated to wear well, being made strong and substantial in all respects.—C. SHUFFLEBOTHAM, *Mount Street, Coventry.*

Echoes from the Hives.

Biddisham, August 18.—'The bees in this neighbourhood are in the most wretched plight imaginable. I should think that few of the hives that are yet alive will survive another month as we have no heather within reach. The combs are empty of honey and even pollen. Bees ought to fetch a high price next spring. I don't suppose that any cottager in Somersetshire will have a stock left next spring; they are too stupid to take the trouble to feed.'

Uffington, Stamford, Aug. 26th, 1879.—'Bees finished work more than a week ago, rain came and spoilt the last few days they were at work on the limes. Many of the stocks have gathered sufficient to see them through the winter; not many well-filled supers about here this year, and am afraid it is a general complaint all over the country. I hope shows will be arranged earlier next year, I should say not later than the last week in August.' —T. S

South Ockendon, 4th Sept. 1879.—'I had a swarm out on Tuesday, 2nd inst., the first in nearly thirty years' bee-keeping I have ever had out in September. They, however, joined themselves to a swarm hived in June, after being repulsed with greatly diminished numbers by several old stocks. My hives are all full of bees, but not much honey, and I am acting upon your advice and feeding liberally, as, with you, I think this is our only hope for another year.'—S. C.

Galphay, Ripon, Sept. 9th, 1879.—'Bee matters are very bad about here this year. I have twenty-one hives, and, when uniting some the other day, I found they had not a square inch of sealed honey amongst them. They all had comb-foundation given them, and were fed liberally until full of comb, but not a drop of honey have they been able to store away. The only good I shall get this year will be a collection of good clean comb for next year. Ought there to be sealed brood now, as there seems to be none in any of the hives? By uniting I can keep the stocks strong, and by feeding at once I hope they will store plenty for the winter.'—A. J. H. W.

Ireland.—'I am always feeding and as yet have very little for it. I am undecided as to whether I ought to unite still more or not. There are three or four frames of brood, but very little honey in several of the hives. But I think by feeding well for the next six weeks they will be strong enough for the winter; but I am sure you would be shocked if you saw how empty the hives are. At most, only six frames (the division board encloses that number). I am so reduced, but I suppose we ought to consider the year we have had, the like of which I hope we shall not witness again.'

Helmsley, York.—'The best of my stocks have got no more than 5 lbs. of honey at the moors, the heather being very bad, it never being known so bad before. I have placed my stocks in Combination hives, one stock at each end, with dummy between and entrance at each end. I have placed a feeder to each stock (Cook's, with glass top), and find they take 3 lbs. each per day at present. I am going to fill barley-chaff between inner and outer case, it being the best to keep the frost out, and a layer of the same on the top of quilt.'—J. W.

Query and Reply.

QUERY No 326.—Would you please say in next *Journal* what is the best thing to be done to a hive which has a drone-breeding queen?—*Orpington, Kent.*

REPLY TO QUERY No. 326.—The obvious course on discovering the calamity would be to remove the unfertile queen and replace her with a fertile one if there were sufficient bees to warrant the expense and trouble the operation would involve. And this might have been done without consulting us and losing the time since the 22nd of September when the query was written. Now, however, we cannot recommend tampering with the stock which, at best, consists of a few combs and a few thousands (?) of old bees that can scarcely be expected to survive the winter. We would remove the queen and add the bees to another stock of bees where they would help to store, evaporate, and seal over the food necessary to winter them before they 'pegged out.'—ED.

A BEE PUZZLE.—A bee-keeper once boasted that he had ten rows of bee-hives, three in each row, which was true, but upon counting them it was found that there were only nine hives. How were they placed?—ED.

NOTICES TO CORRESPONDENTS & INQUIRERS.

THE COLOURED WRAPPER it should be remembered indicates that the Subscription has run out. We do not like to send it so repeatedly, as it is often noticed by neighbours and servants, therefore we hope those who wish the *Journal* to be continued will send their P. O. Orders to Southall, Middlesex.

H. J. (*Wolverhampton*).—We know of no way of inducing bees to take and store artificial pollen for winter use, and should certainly not recommend forcing it into the cells. Our chief care would be devoted to the subject in the spring of the year, when crocuses are about blooming—there will be no difficulty then. Can you not find pollen in other hives, and by exchange of combs rectify the apparent evil. We seldom find hives entirely devoid of pollen, and perhaps there may be some in the present instance, covered with a film of honey and sealed over.

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THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 79. Vol. VII.] NOVEMBER, 1879. [Published Monthly.]

Editorial, Notices, &c.

NOVEMBER.

With the advent of this dreary month all hope of natural improvement in things relating to bees may be considered at an end for the current year, and it now only remains for those who have given their bees the necessary attention as regards food, cleanliness, and protection, to pack them for the winter which is so near, and of which a foretaste was given during the past month. On the mornings of the 16th and 26th ult. our neighbourhood was visited with sharp frost, blighting all tender things which were exposed, and cautioning every one to prepare for the evil which must in the nature of things be expected after such a terrible season, we may say succession of seasons, of calamitous disappointments. After the harvest time, in a year of average success, there comes a pleasant time of reckoning: crops are assessed for yield and value, the rules of multiplication, thoroughly appreciated and understood, are brought into play, a little sum in arithmetic is worked out, and the culturist, of whichever science he may be the exponent or disciple, feels his face gradually widen and his eyes dilate as the figures enlarge to the left in the total, and he finds himself with a balance in his favour that will keep the wolf of winter from the door, and enable him to go on his way rejoicing. But in this dread year, after a season in which there has been little or no 'multiplication,' indeed, in far too many instances, wherein the earth has not only yielded no increase, but has not even returned the seed to the hand of the sower, the forecast and outlook are bad, and the faces and hearts that should be wreathed in smiles and stimulated with gladness, are swathed in gloom, and chill with the atmosphere of dread and despair which has penetrated them and rendered them sunless and dreary as November itself.

In matters pertaining to apiculture this picture is by no means overdrawn, for, to our knowledge, in many well-managed apiaries there has been neither increase nor profit, while in those where the let-alone principle has predominated whole apiaries have disappeared, and many counties have been left comparatively beeless. It is well, however, that notwithstanding the adverse seasons there are so many who have firm reliance in apiculture as a profitable pursuit, and who accept the failures of the year as a visitation which no earthly power could foresee or prevent, and, putting a good face upon it, take it as a matter of course, and by redoubled care endeavour to prevent actual loss, and teach their less-experienced brethren to profit by their example. In this respect, the Committee of the British Bee-keepers' Association may be honestly congratulated on the wonderful success that has attended their labours wherever they have been directed. By their great exhibitions at Kilburn and Kensington, by the convincing efforts that have been made in their travelling tent where exhibitions of manipulation with live bees have been given and lectures delivered, bringing to light the economy of the hive, and explaining away the mysteries which enwrapped it with the supernatural as with a garment it was sacrilege to rend or remove. By these, and their meetings and conversaziones, and by the awarding of prizes to stimulate the bee-keepers of the whole kingdom to the improvement of the science in all its bearings, we say, and we feel confident, that an approving response will echo throughout the land, that they have faithfully performed the duty they imposed upon themselves, and are deserving the thanks of the community at large, and its most cordial support in the future. We are not unmindful of the efforts of those who conduct county and local associations, of which there is now a numerous list, gradually increasing; all praise is due to them, and they deserve the highest commendation for the genial spirit of philanthropy they have displayed in carrying on the useful work. Missionary-like, they have gone into the by-ways and corners where ignorance lurked, pitched their tent, and by word and deed conveyed instruction on

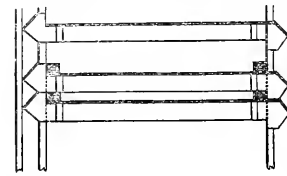
matters relating to bees, that has awakened the public generally to a sense of the importance of their culture, and tended to revive the pursuit as one of considerable consequence to the nation.

USEFUL HINTS.

Barley-Sugar Feeding.—Should any feeding be now necessary, barley-sugar is the only food that should be given. It is highly wasteful to give that ordinarily sold by confectioners, as it is usually too highly dried (to make it keep), and a third of it will not deliquesce or become liquid, so the bees, being unable to lick it up, carry it out of the hive, and throw it away. Barley-sugar may be given anyhow, so that the bees have access to it without injury to themselves. It may be placed over the central hole in a little pile, and a flower-pot inverted over it, or it may be thrust between the combs amongst the bees, placed under the quilt on the top of the frames, or, in fact, anywhere where it will be near the bees; but it must be given in small quantities, or it may liquefy too rapidly, and run down among them, making them sticky and wet at a (cold) time, when they will be unable to free themselves from it, and thus it may be a source of mischief. Barley-sugar is recommended as winter food because it contains so little moisture, and consequently there is less to evaporate than if syrup be given.

Winter Passages.—'I do not like to disturb my bees, to make these,' say several correspondents. 'Will it not do to make a way above the frames for the bees to pass from comb to comb?' Well, we once lived in a house with front and back staircases, and between them were a parlour and kitchen communicating, and in cold weather we found it much more comfortable and convenient to pass through the doorway below (the winter passage) than to climb one set of stairs, traverse the cold upper rooms, and descend by the other stairway. We would much prefer the inconvenience attending the making of a doorway, even so late as at Christmas, rather than force our family to run up and down stairs so often, and we have little doubt but that if the bees could convey information otherwise than by results (which speak plainly to those who can interpret), they would recommend that a similar course be adopted for their benefit.

Preventing Draught.—On another page (p. 139) will be found our new idea for preventing draught through the bee nest. We are fully aware that it is not practicable in all hives; but some modification may be attempted in most, and we hope a great number of bee-keepers will test the theory suggested. Anyhow every one possessing a bar-frame hive can adopt the means we have so often referred to for preventing the draught round frame ends, by inserting wooden stoppers between their frames, as indicated in the woodcut. In straw



skeps, where the bees build up to the crown and half way down the sides, they winter well as a rule, and consume very little food; but bee-keepers do not seem disposed to learn from the bees, but prefer to wander by intricate ways in search of truths that are staring them in the face at home.

Narrowing Entrances.—We are almost afraid, after Mr. Cheshire's demur (p. 139), to suggest that if entrances be nearly closed, less draught will be possible through hives than if the entrance be left fully open; but anyhow we are convinced that they will be easier to defend should a raid upon them be made by robbers. Entrances should never be closed entirely, even during the worst weather; they should be shaded to prevent too much light tempting the bees forth to their destruction, but room should always be left for two bees to pass.

Transferring.—The open weather in October instead of being utilised for feeding, transferring, uniting, and getting ready for winter, has tempted a great number of bee-keepers to put off attending to them; and to many letters of inquiry we can only say, it is too late for transferring with any hope that the bees will do well.

Uniting and Feeding must still be done where they are necessary; but the risk is great, and if dysentery lays hold of a hive, it is difficult to shake off, and is very likely to c use its destruction.

Preserving Empty Combs.—Whenever we have tried to preserve combs in a box or other receptacle, our object has generally been defeated, for the moth or its worms would surely get in and damage them; but we found that if hung separately in a dry airy place they escaped, it appearing that a moist atmosphere is necessary to the life of the pests. Full combs are also liable to attack, and none should be left completely out of sight, particularly those that may have been raised on, or in, straw skeps, which are convenient harbours for the destructive vermin.

Keeping Foundation.—We have never had comb-foundation attacked by moth; but a correspondent suggests the possibility of a lodgment being effected, and therefore it will be well to overhaul the stock occasionally.

Wooden Foundations.—We had the pleasure of showing at the Conversazione on the 15th ult. some specimens of the cells obtained by our proposed shoe-nail foundation-rollers, and considerable surprise was created by the excellent character of the work performed. In some instances the walls of the cells were more than a sixteenth of an inch high, and contained sufficient material to enable the bees to complete them, if they will do so; though it is just possible that there may be too much for them to handle conveniently. We have received considerable assistance in our search for nails of correct size (which we have not yet found), but we hope some one may yet find such as will answer the purpose, and prevent the necessity for a special manufacture.

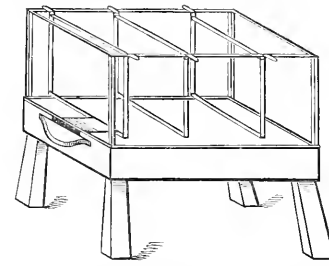
Flowers for Bees.—We have this season planted 4000 additional crocuses about our apiary, making in all about 9000, which have been entrusted to Mother Earth, in the hope of future reward in beauty and usefulness. We have also sown a quantity of the annual Limnanthis Douglasi, kindly forwarded to us from Belvoir by Mr. Ingram, who so highly extols it as a bee-flower. Wallflowers and Arabis alpinus, great favourites of ours, are grown in abundance, though last year the former was terribly cut up by the frost. We have, also, about a hundred palm-bearing willows, and about a thousand gooseberry and currant-trees, so are tolerably well prepared for a supply of early natural pollen. We shall not, however, forget the artificial when the first blossoms appear, and bees are able to fly in search of it.

Boiling up Old Combs.—It is sheer folly to allow old combs to lie about, to become the receptacles and nurseries for wax-moth. Boil them up by the plan recommended to us by Mr. J. M. Hooker, of Sevenoaks, as follows:—Throw all the comb into a copper, press it into a small compass, get a ring of wood or metal the diameter of the copper, cover the ring with straining material, and press it inside the copper, fastening it down by sticks thrust up against the ceiling. The copper is then to be filled with water, and by boiling, the wax will be thrown out of the comb and will rise to the surface, where, when cold, it can be taken off in a clean cake. Mr. Hooker much prefers this plan to pressing the comb into a bag and boiling it, as in the former case ebullition separates the cocoons, and allows the wax to pass freely upwards, the cocoons themselves being boiled quite free of wax, and becoming afterwards dry as chaff.

ABBOTT'S PRIZE OBSERVATORY HIVE.

The official report of the judges at the South Kensington show says, in regard to this hive (p. 97, Vol. VII., *B. B. J.*):—

'The first prize was unanimously adjudged to Mr. C. N. Abbott's Observatory hive. It commended itself at once by its simplicity of construction; the fact that it presents the entire hive of bees in its strictly normal condition for general observation, and retains it so up to the very moment when a partial separation of any of its component parts is required to be made for any special investigation; and that it appears to open out a field for very extensive development in the future, whereby many of the vexed questions in bee science may be partially, if not entirely, solved. The *principle* of this hive presents a new starting-point for vast improvements.'



It is comforting to have one's inventions thus kindly appreciated by such excellent judges as subscribed their names to the Report, but we feel that it is necessary also that the public at large should share also the benefits which may be derived from the acknowledged improvements contained therein, and, therefore, at the risk of being thought interested (for lucre) we take leave to describe the hive, premising that there is nothing 'patent' in its construction, and that any one of ordinary capacity, with a little spare cash, may make one for himself. It is necessary that such a hive should be chiefly of glass, or the bees could not readily be seen at work; and therefore the wooden part of the work is very slight, there being for the hive proper only a floor-board on legs, with grooved corner-pieces running up to receive the glass, which forms the walls of the hive, upon which the crown of the hive rests, and by which it is held in position. To keep the legs firm, pieces of board, four inches wide, are screwed on all round the floor-board, and to protect the glass from injury an outside cover is arranged, which may either be hinged in pieces to the last-named or slid on as a whole; but this latter is not here shown. An arrangement that overcomes the difficulty hitherto experienced of keeping the bees in their natural condition, so far as is possible within a hive, is effected by allowing the glass crown of the hive to rest on the back and front walls only, leaving crevices

one-sixteenth of an inch wide between it and the side walls; and by providing the frame-bars with flat metal ends, which project through the crevices above named, and afford means for moving the frames of comb and bees backward or forward at will. The hive should be made of a capacity to hold about three times the number of frames it is intended to place in it, so that there may be plenty of room in which to separate them when either is to be brought under observation. The judges are doubtless right in suggesting that the '*principle*' of the hive is a starting-point for great improvements; but in the meantime, we are pleased to think we have produced a hive in which bees can increase, and multiply, and work profitably, yet in which, at a moment's notice, every part of the hive, bees, and comb, can be viewed equally as well as in any other hive made for the purpose. Observatory hives have been in use for many years, but hitherto they have been expensive luxuries, useful only for observation purposes; but in that under notice, which, by-the-by, is nothing more or less than an 'Abbott's Combination Hive' with glass walls and crown, the bees can do all that is possible in any other, will increase as rapidly, will gather as much honey, store it as readily, and winter as healthily, if equal care be taken. This hive can be placed either in a garden, summer-house, or drawing-room. For safety to 'observers,' it should be within a building, the means of exit being outside; but with those who do not fear bees, and those who do not object to wear a veil, it would be practically better outside a building, but sufficiently near to give facilities for bringing it on the inner side during winter. This Observatory is especially recommended for ladies' use, it having been an object of intense interest to them wherever it has been exhibited.

BRITISH BEE-KEEPERS' ASSOCIATION.

The Third Quarterly Meeting of the Committee, held for the purpose of conferring with county representatives, took place at the Board-room of the National Chamber of Trade, 446 Strand, on Wednesday, October 15th. There were present, Messrs. T. W. Cowan (in the chair), C. N. Abbott, F. Cheshire, J. Hunter, J. M. Hooker, Rev. E. Bartrum, W. O'B. Glennie (Treasurer), and Rev. H. R. Peel (Hon. Sec.); there were also present Mr. Jesse Garratt (Kent), and F. H. Lemaire (Surrey). The minutes of the previous meeting having been unanimously confirmed and signed, the Secretary read a letter received from Mr. W. N. Griffin, Secretary of the Devon and Exeter Association, regretting his inability to be present at the meeting, and pointing out the need of suitable diagrams for lectures, &c. in schoolrooms. A letter was also read from Mr. P. H. Phillips, of Offley Lodge, Hitchin, to the same effect. The Secretary also reported that he had had an interview with Major Donelly, at the Science and Art Department, South Kensington, upon the subject; and read a list of suggestions which had been given to him for the guidance of the Committee in the matter.

The cost, &c. of such diagrams having been discussed at some length, it was unanimously resolved that a sub-committee consisting of Mr. Cheshire and Mr. Hooker, with the hon. sec., be formed for the purpose of inquiring into the cost of such diagrams, with the view to their publication. Mr. Abbott gave notice 'that at the next meeting he should bring forward a resolution, with the view of some steps being taken for the introduction of honey exhibits at the dairy and other shows.'

The balance-sheet for the month ending September 30, was read as follows:—

INCOME.

	£.	s.	d.
Amount received Jan. 1st to Aug. 30 .	389	4	3
" " Sept. 1–30 . .	35	3	6
Total—	424	7	9

EXPENDITURE.

	£.	s.	d.
Amount expended Jan. 1 to Aug. 30 .	337	16	3
" " Sept. 1–30 . .	26	19	5½
Balance in hand . .	59	12	0½
Total—	424	7	9

Mr. Garratt (Kent) informed the Committee that the Cray Valley Bee-Keepers' Association had determined to abolish that title, and to form an Association for the County of Kent, under the title of the West Kent Bee-Keepers' Association; and that he had received instructions to make application for a commendatory letter from the Central Society to the bee-keepers and other residents in the County of Kent. It was unanimously resolved that the following letter be issued, viz. 'The Committee of the British Bee-keepers' Association has much pleasure in directing the attention of its members and all those interested in the subject of bee-culture, residing in the County of Kent, to the fact that an association to be named the West Kent Bee-keepers' Association is about to be formed in that county. The Committee of the British Bee-keepers' Association, recognising the claim for affiliation put forward by the new Association, and being desirous of promoting its success, willingly responds to the wish that has been expressed that a communication should be addressed to the Bee-keepers of Kent by the parent Association, commending it to their generous support. This wish it therefore heartily endorses, and further indulges the hope that complete success may be secured by the hearty co-operation of all bee-keepers residing in the county.'

The Rev. E. Bartrum considered that some steps should be taken with the view of inducing the Government to appoint a Professor of Apiculture, in connection with the Science and Art Department of South Kensington.

Mr. Bartrum having promised to endeavour to obtain some information upon this subject, it was deferred until a future meeting.

BRITISH BEE-KEEPERS' ASSOCIATION.

QUARTERLY CONVERSAZIONE.

On Wednesday evening, October 15th, an influential gathering took place in the Board-room of the National Chamber of Trade, 446 Strand, when a most interesting paper on 'Wintering Bees' was read by Thomas W. Cowan, Esq., F.G.S., F.R.M.S., of Horsham, Sussex. Amongst those present were the Rev. E. Bartrum, the Rev. H. R. Peel (hon. secretary), Major-General Saunders, Messrs. R. R. Godfrey, W. O'B. Glennie (Treasurer), F. Cheshire, J. Hunter, J. M. Hooker, C. N. Abbott (Editor of the *British Bee Journal*), F. R. Jackson, &c.

Mr. F. R. Jackson was voted to the chair, and in the course of a few opening remarks bore testimony to the great value of meetings of this character, which must

have a very important influence upon bee-keeping generally. Looking at the success of the past, which was due in a great measure to the energy and enthusiasm of the Hon. Secretary, he did hope that the expressed wish of Lady Burdett Coutts would soon be realised by the formation of a bee-keepers' association in every county of England. He then introduced Mr. Cowan, who read the following paper:—

Wintering Bees.

The problem which has been for some time, and is still, puzzling many of our bee-keepers, of how to safely winter their bees is of such importance, that upon the request of our honorary secretary I at once consented to introduce the subject before you for discussion to-night, more especially as this is the season of the year when such a discussion would be productive of most good to apiculture. Every autumn some allusion is made, and directions are given, by the editor of the *British Bee Journal* and by contributors to that and other periodicals, and yet every spring we read most dismal accounts of the state in which hives are found at that time. It is quite distressing to read the accounts of the disasters, many of which would have been avoided if only some of these instructions had been carried out. Nor is this state of things confined to our own bee-keepers, for we find that in America, where the subject has been more thoroughly discussed, and has received more attention than it has here, in the spring of each year the journals are filled with letters of complaint and questions as to the cause of disastrous wintering.

How long is such a state of things to exist? and, with our present knowledge of apiculture, is there any difficulty in the way of successfully wintering bees? To the first question I can give you no answer; and the second I will endeavour to answer by stating the conditions necessary for safe wintering, and how those conditions can be easily secured.

In January, 1873, Mrs. E. S. Tupper, of America, in detailing her experiences of wintering bees in the winter of 1871 and 1872, and covering them with chaff or a piece of blanket, sums up by saying: 'I consider the requisites to successful wintering in the open air to be, abundant stores with winter passages through the combs, a large colony of bees, and upward ventilation, secured without a draught of cold air passing through the hive.' To this, I would add the necessity of keeping the bees at as even a temperature as possible throughout the winter.

It is an acknowledged fact, that bees consume a certain quantity of food during the winter months for the purpose of generating heat, and that they are more or less active during this period. The more even the temperature of the hive the less food will be consumed, the bees will display less activity, and will excrete very little. The greater the variation in the temperature the larger the quantity of food consumed, the greater the activity of the bees, and, consequently, the excretion, either in the form of fæces or by evaporation, from the body is greater; and as the bees are unable at such seasons to leave the hive, the result is abdominal distention, of which I need not now speak, as Mr. Cheshire last spring gave us a most eloquent and interesting lecture on the subject. I should, however, add that this abdominal distention causes a large amount of fæcal deposit in the hive, rendering the atmosphere poisonous, and ultimately resulting in dysentery.

When the hive is too cold the bees cannot retain the fæcal matter, but void it over the combs. They also consume a large quantity of food, which causes the exhalation of a large quantity of moisture from their bodies, which is condensed on the cold combs and sides of hive. This often freezes, and prevents the bees getting at their stores, and they starve with abundance of food near them. As soon as the temperature rises, the ice is again converted into moisture, which, if not got rid of, induces fungoid growth, and causes mouldy combs. It will, therefore, be seen that to keep the bees in health during the winter months requires a uniform temperature in the hive.

To preserve the uniformity in the temperature of a hive requires, not only food, but that there should be also a large number of bees in it. A large number of bees will keep up a higher temperature with a proportionately smaller amount of food than a small one. Bees cluster compactly together in winter, and thus maintain their proper temperature of about 65 degrees. Now, to keep up this temperature requires, as we have seen, a consumption of a certain quantity of food, and this consumption causes a certain amount of activity. The work performed by the bees in generating this heat is in proportion to the numbers contained in the hive. If there are but a small number, they will have to consume a large quantity of food and exert themselves considerably to keep up the heat. If, on the contrary, there are a very large number of bees, the same amount of food will be consumed, but in a smaller proportion by each individual bee, and with a smaller amount of exertion the same degree of heat will be maintained. The life of a bee is in proportion to the amount of work it does. Although during the summer months the worker-bee only lives a few weeks, bees bred in the autumn are capable of passing through the winter, but only then if they are not called upon to do too much work. If they have to exert themselves much to keep up the heat of the hive, the older ones die off, and only the youngest remain. Hence it will be seen, that we require, not only a large number of bees, but that they shall be young, so as to be able to perform the trying work of keeping up the temperature. Therefore, to maintain a uniform temperature requires, in addition to food, a sufficient number of young bees.

The heat produced in a hive is in direct proportion to the food consumed: and, in this consumption, in addition to the moisture, a proportionate quantity of carbonic acid gas is given off, which is equally as noxious to bees as to the higher animals. This carbonic acid and moisture must be got rid of before we can expect the bees to pass through the winter months in safety. We have now before us the requirements for successful wintering, viz.: A uniform temperature; a sufficient quantity of food; a large number of young bees; and a hive free from moisture and noxious gases.

Let us now consider the quantity of food necessary to be provided for the winter consumption of one stock of bees. It is admitted that a strong colony of bees will not consume more honey than a weak one; and in a large moveable-comb hive I have found, that taking the winter through, the average consumption of honey is about 1¼ ounces a-day, or for the five months, from the 1st October to the 1st of March, during the time that breeding is almost entirely suspended, the consumption is about 13 lbs. It is, however, not safe to rely on such a small amount, for the simple reason that this small consumption requires a most even temperature, which is sometimes difficult to maintain, and does not provide for the contingencies so frequent in our variable climate. I do not consider it safe to winter a hive with less than from 25 to 30 lbs. of food, for although 13 lbs. is just sufficient if the temperature is uniform, yet I have found when it fluctuates much, as it frequently does, the consumption is much greater. I have also noticed that bees with only a sufficient quantity of food in their hive are much more restless, and are induced to fly out more frequently than those well provisioned; and as our object is to keep the bees as quiet as possible, for the reasons before stated, it is safer to allow them an abundance of stores.

It has been stated that bees often starve with an abundance of stores near them. This often happens when they cannot pass from one comb to the other in cold weather. They are reluctant to leave the warm

cluster and pass round the cold ends of the comb; therefore, to insure the stores being accessible, it is necessary to cut passages through the combs, so that they can pass through from one comb to another without having to go round it.

The next object we must aim at is to have a large population of young bees. Breeding, in a hive left to itself, will often cease about the middle of August, and if there is much honey collected during September, as has been the case in my neighbourhood this year, every cell in the brood-chamber is filled with it, and, by the beginning of October, there is no brood, and no place to put any. Now, a hive in this state is in the worst possible condition for wintering. The bees in such hives must die a natural death, most of them before winter, and the hive become depopulated. It is natural for bees to gather all the honey they can, and they store it in such combs as they have, and will fill the brood-comb as fast as the bees are hatched out, and continue to do so until the end of September, when the frost generally cuts off all sources of supply. Now, supposing the youngest bees in such a hive on the 1st October are six weeks old, then about the end of November, when cold weather sets in, the hive is full of old bees and honey. Presuming that at the beginning of February (as it frequently happens) the queen begins to lay again, can these bees live long enough to hatch the brood? I think not. There may be some left to cover the brood, but by the time the brood should hatch they are too weak to keep up the necessary degree of heat, and the colony, if it survives the winter, is sure to perish in the spring. Our object, therefore, must be to induce breeding to be continued as late as possible, at any rate until October, so that the hive may contain as many young bees as possible to take up the work of the hive in the spring. We have seen that when bees consume food to maintain the temperature of a hive, a certain amount of heated air, in addition to carbonic acid gas is evolved, and this heated air coming in contact with the cold combs and sides of hive is condensed unless it is got rid of by some means or other. It may be got rid of by ventilation, taking care to do so without creating a draught. I remember the time when close-fitting crown-boards were used, with a hole in the centre, and how frequently we had to put up with mouldy combs in consequence of the moisture condensing on them. So convinced was I of the necessity of ventilation, that I used to raise the hive an eighth of an inch all round, and also raise the back of the crown-board an eighth of an inch, and, by contracting the entrance, the desired end was secured. A great improvement was made by Mr. Cheshire* when he introduced his divisional crown-board, as by moving the divisions apart, any amount of ventilation could be secured. The quilts introduced in America afford us another way of easily ventilating a hive, provided they are properly applied.

The usual way of placing a quilt, just sufficiently large enough to cover the top of the hive, does not secure to us the greatest advantage we can derive from it, and it often happens that it becomes wet, owing to the too slow evaporation of the moisture from it; but if the quilt is allowed to extend half-way down the outside of the hive it remains dry, because the capillary force is greatly increased, and draws the moisture out, as through a syphon.† The experiment is easily demonstrated by placing a roll of cotton-wick in a glass of water, extending only a short distance above the surface, the liquid will ascend the wick and be slowly evaporated; but if the wick is drawn over the side of the glass, extending half-way down, this capillary force is considerably increased, and will soon empty the glass.

Having now stated the requirements for successfully wintering bees, I will conclude by giving you a description of some of my methods of proceeding. Nearly all my bees are in moveable-frame hives, and they are examined frequently during the autumn months, and if breeding is found to be suspended, owing to an influx of honey, it is extracted, and the hive provided with empty combs sufficient for breeding purposes. If, on the other hand, breeding is relaxed owing to a want of honey, the bees are stimulated by gentle feeding, and thus the queen is induced to continue laying. If the colony is weak and deficient in numbers, it is united to another one, and one of the queens selected. It is very important to have vigorous and prolific queens, and if any are found not so they are at once replaced by younger ones. At the beginning of October all hives are fed up, so as to contain from 25 to 30 lbs. of stores sealed up. All honey, or syrup, unsealed is extracted; the two outer combs are removed, and the space contracted by a dummy. Winter passages are cut in the combs, so that the bees may pass from one comb to the other, and avoid being chilled by having to pass round the frames. For ventilation, I have used the divisional crown-board, a quilt, an empty super the same size as the hive, all with equal success. Last season I tried the following plans:—The combs were placed apart so that they were 2 inches from centre to centre, a piece of drugget was put on the top of the frames, hanging over the outer frames and reaching the floor-board. On the top of this another piece of drugget was placed, covering the top of the hive. Between the drugget and the top of frame I placed a piece of wood five-eighths of an inch square to allow the bees to pass over the frames, and on the top of the hive was placed an empty box with a lid.

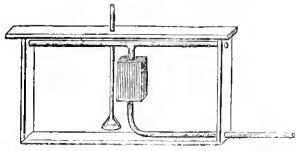
A second hive was treated in a similar way, except that the upper box was filled with chaff. Both wintered successfully and turned out strong in the spring. Having been in the habit of driving a number of straw skeps every autumn for the cottagers in the neighbourhood, I have been able, by joining several lots together and feeding them up, to make quite respectable stocks before the cold weather sets in. Observing that as the combs do not reach the bottom, the bees generally cluster at the lower ends of them, I was induced to try an eke on one of my stocks, with equally good results. I may here remark, that driven bees fed up in the autumn invariably make the strongest stocks the following season, for the simple reason, that as they are obliged to make new comb, breeding is kept up later, and the population is a young one.

Being convinced that it is injurious for bees to live in a foul atmosphere, and that ventilation was necessary, the idea occurred to me that if we could change the atmosphere in a hive continuously, without reducing the temperature or creating a cold draught, we should be making a forward step in successfully wintering bees. I, therefore, constructed a frame containing a tin box, with a tube at the bottom, which passes to the outside of the hive, and a tube at the top, branching off to the front and back inside. This frame is placed in the centre of the hive, which is contracted in such a way that the bees are forced to cluster around the tin box. On the top a close-fitting crown-board is placed, and the hive is raised one-eighth of an inch off the floor-board, and the entrance con-

* We crave pardon for correcting Mr. Cowan in respect of the divisional crown-board: it was an invention of our own, in use by us in 1871; it was described in the *English Mechanic*, February 9, 1872, and illustrated in that valuable periodical on September 20 of the same year. We gave Mr. Cheshire credit for an improvement in it by which on reversing its outside pieces it could also be used as a honey-board (See *B. B. Journal*, Vol. I. pp. 99, 100, November, 1873).—Ed.

† We are very glad to say that our way of applying the quilt never necessitates any precaution of the kind here suggested. We take care to keep our quilt well within the hive roof or casing, since we find that the material is more likely to get wet from outside causes than from anything within.—Ed.

tracted to about half an inch. Now, the heat of the cluster warms the sides of the box, which at once causes the fresh air from the outside of hive to enter at the lower end of the tube, and in its passage through the box the temperature is raised, and it flows out of the top tubes, and is diffused through the hive. The warm air thus entering at the top of the hive drives down the cold air and all the noxious



gases. A small tube at the side of the box, having a funnel reaching to within an inch of the floor-board, and having an outlet outside the hive at the top, also assists in getting rid of the gases without creating a draught. In this way the hive is constantly supplied with pure air of an even temperature, and the hive in which I tried this frame last winter was the most flourishing one I had in the spring. So convinced am I that this is a right way of supplying ventilation, that I am about to try it again this winter on a larger scale. Some of my hives are double cased, and require no outer protection; but my single-walled hives are covered with brown paper and straw, or if they are in houses, they are surrounded with chaff. As it is best for bees to be as quiet as possible during the winter months, they are not disturbed after the beginning of November until about the end of February or the beginning of March, when they are overhauled and transferred to clean hives if the weather is favourable. If it is too cold, the earliest opportunity is taken to do the transferring. Means are at once taken to induce the queen to commence laying, and in this way the colonies pass through the winter and spring months safely, and are strong by the time honey-gathering commences again. All my hives are scalded after they have been used, and the bees are fed on syrup containing a certain amount of salicylic acid, as it prevents candying and is an antidote for foul brood.

I always keep a stock solution of salicylic acid, with which I wash over all my hives and frames, and before I replace any of the combs into the hive they are sprayed with it. The food in the autumn must be thicker than in the spring, as it takes a longer time to evaporate before the bees can seal it up; but in the spring, as the bees require a larger amount of water, I have found it advantageous to give them the syrup more diluted.

I have tried other methods of wintering besides those mentioned, and of course many other ways will suggest themselves to the scientific apiarian, and I should be glad to hear the experiences of those present; but I think we may safely lay it down as a rule, that to winter bees successfully it is necessary to have,—1st, an abundance of stores; 2nd, winter passages through the combs; 3rd, a large number of young bees and prolific queens; 4th, provisions for sufficient and proper ventilation without cold draughts.

Mr. Hunter said it was mentioned in the paper that sixty-five degrees of heat was necessary in the hives; was that intended for breeding purposes, or merely to keep the bees alive?

Mr. Manning desired to be informed how late Mr. Cowan considered it safe to drive bees?

Mr. Cowan: For what purpose, sir?

Mr. Manning: For the purpose of taking cottagers' skeps and keeping the bees through the winter.

Mr. Abbott: I should like to take Mr. Cowan's opinion as to the necessity for pollen in the hives during winter.

Mr. Garratt: There was a remark as to new combs: does that refer to combs made in autumn? If so the bees must be driven earlier.

Mr. Cheshire said they were very much indebted to Mr. Cowan for the excellent paper he had laid before them. With the permission of the chairman he should like to make a few observations on one of the questions that had been asked, for it seemed to him that the point so raised had a very considerable bearing on the question before them, as to the best method of wintering bees. The question to which he alluded was that as to the necessity of pollen in hives during winter. Having for some time been making experiments in this matter, he had reached certain results which, to some extent, were remarkable; and he thought he had succeeded in finding a way of feeding bees which would in a great measure revolutionise past systems. They all knew that bees require two kinds of food—as indeed all animals do: they require honey for heat and force, and pollen to keep up their own tissue, and to produce tissue in the young grubs which are being fed in the hive. For some years he had been endeavouring to find out how best to give pollen to bees at all times. Up to a few years ago when they spoke of feeding stocks, they meant giving them sugar; but that was only half accomplishing all that was necessary, for the addition of nitrogenous food was required. He believed he was the first to suggest pea-flour, and he found his bees took it readily. Many wrote on the subject, saying that bees refused to take pea-flour; but the answer to that no doubt was that the bees to whom the flour was offered were not being fed with syrup. If they had been the pollen would have been a necessity, and not being able to get it from the flowers, they would have taken it in the form of pea-flour. Of course when they gave bees syrup the air was generally so chilly that they could not fly abroad to collect the pollen, and to offer them pea-flour then was useless. Generally pea-flour was offered in trays in the garden, but unless the temperature be high enough to induce the bees to fly abroad none could be appropriated; but he thought he had surmounted the difficulty. In 1874 or 1875 he made a sort of pudding of nitrogenous food mixed with sugar and water, which he placed over the tops of the frames. He could not say whether the bees took any of it, but if they did the quantity was so small that it was practically valueless. This autumn he had been feeding his bees with artificial pollen, and the stock that took the artificial pollen well in spring also took it best this autumn; but the new bees were not apparently able to learn they could use it, and with one or two exceptions they had generally refused it, even though it was more necessary to them than to the others. He started condemned bees on the previous Tuesday, and had no doubt but that he would be able to start condemned bees at Christmas as well as at any other time by the means he had discovered. Commencing on October 8th he fed the bees on sugar, for in his district there was not a particle of pollen or honey to be obtained; and he noticed the bees flew from the hive as if in search of water, the syrup probably being too thick. The difficulty was how to give them pollen, without which they could not raise the essential brood. The idea had occurred to him that when bees stored pollen, it was placed at the bottom of the cell, then covered over with honey and sealed, the two mingling, and at the point of contact forming a pasty liquid. Reasoning upon that, he thought there could be no harm in giving them a mixture of honey and pollen; and so he simply removed the comb, mixed the pea-flour and syrup (in which there was a small quantity of salicylic acid) into a paste, and with a flat knife pressed it into the comb, and then placed it in the hive [Mr. Cheshire here exhibited a piece of comb taken from one of his hives, in which the pea-flour was most beautifully and regularly packed]. In an hour or so afterwards he found the bees had removed the excess of syrup and had rammed down the pollen as though it had been gathered in the

natural way, thus doing with little labour and without exposing one bee outside the hive all that it would have taken hundreds of bees many hours to accomplish in the old way of giving pea-flour. They all knew that in the stomachs of wax-workers particles of pollen were found, showing that they not only needed honey but also pollen to make up for the waste caused by the labour of comb-building. These bees were getting no pollen, and so he gave them this artificial food pressed into the comb. In a few hours he found it reduced in quantity, and on the Monday following the Saturday in which he put artificial food in the hive, he was astonished to find that all had been eaten. He calculated that he had put in the comb, in the way described, four ounces of pollen and syrup. This pollen had been consumed before the bees had any hatched brood in the hive. So that he took it, by giving them artificial pollen without the bees having to leave the hive, they could at all seasons of the year, when possible to open the hive, give them all the conditions necessary for comb-building. The syrup could be given in a bottle and the pollen in the comb.

Mr. Manning: Will Mr. Cheshire tell us exactly how he made the pollen—the ingredients, I mean?

Mr. Cheshire said the pea-flour immediately soaked up the syrup, and the paste was made instantly; it should be just stiff enough to admit of being held upon a knife.

Mr. Baldwin: I understand Mr. Cheshire to say that bees that took artificial pollen in the spring took it more readily in the autumn. Did he mean to suggest that the bees of spring lived on till autumn?

Mr. Cheshire: I have simply stated a fact, but do not pretend to account for it. There are many facts in bee-keeping that cannot be accounted for: for instance, I have known when a stock has swarmed in a garden, future swarms from the same stock year after year have gone to the same place: and I can only say it is so.

Mr. Lyon: May I ask if bees require pollen while building comb as well as syrup?

Mr. Cheshire: Undoubtedly.

Mr. Lyon: That is rather contrary to my experience. Last year I drove thirty stocks for cottagers, uniting them in threes. They took close upon a hundredweight of sugar, and formed good stocks: I have some at the present moment. Last spring I mentioned twin hives, and I said I had two stocks in one of them: these two stocks were both from condemned bees. I took a hive with me to bring them back, and bundled a lot on one side and nailed down the canvas: and I also did the same with the other side. They remained so throughout the winter, and that was the hive I spoke of at the spring meeting as containing brood on both sides of the division-board. These bees were brought home on the 28th September, 1878; I gave them nothing but syrup, and I am sure they did not gather much pollen; they not only built their combs, but at the end of January, when the frost closed, I found both stocks contained brood. I am perfectly certain the amount of pollen they had was infinitesimally small, and therefore I think you are rather in error in supposing bees cannot build comb, and also that they cannot produce brood without pollen.

Mr. Abbott: Has Mr. Cowan had any experience with regard to artificially sealing honey or syrup?

Mr. Cowan: I have not.

Mr. Manning: How late could you depend upon the bees sealing it themselves?

Mr. Abbott: I should like to know whether Mr. Cowan thinks it necessary to stop the circulation of air round the ends of frames.

Mr. Cowan rose to reply. The first question was as to the temperature: sixty-five degrees was the temperature which would enable the bees simply to live through the winter. That was the temperature he found by means of a thermometer was the average heat of a cluster throughout the winter. As to breeding he generally tried to get his bees to breed in February, if the hive could be opened and the air was favourable: and he kept them breeding as long in October as possible. Having referred to his mode of using the quilt, he spoke of driving bees, which he had done in the middle of October; and this year he should not hesitate to drive, unite, and start them afresh now. There was plenty of pollen in his neighbourhood from the ivy. As to the necessity of pollen, he thought Mr. Cheshire had answered that. He did not trouble very much about it in the autumn, because he generally found that bees had sufficient to last them through the winter; and it was a very small quantity of pollen they required through the winter months. The consumption of pollen represented the wear and tear of tissue. Their object should be to keep the bees as quiet as possible, so that they should not consume pollen.* The next point was how late could the honey be sealed. During October, if the weather was favourable, the bees would seal a great portion of the honey. Of course there was always a quantity of honey not sealed over, and that at the end of October should be removed. He had not tried artificial sealing, but he believed it had been successfully attempted in Germany.

Mr. Abbott: We have tried it successfully. You simply want syrup of a honey consistency, and having got it into the comb, paint it over with melted wax.

Mr. Cowan: Relative to stopping the ends of frames, he did not think there would be any objection if the heat was allowed to circulate from one comb to another; but otherwise it would be detrimental.†

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* We should be very cautious in giving artificial pollen for winter use, or causing bees to breed at unseemly times. Mr. A. I. Root, one of the most experienced bee-masters of America, in his really valuable work, the *A B C of Bee Culture*, says on this subject: 'We are interested about pollen because bees cannot rear brood without either it or some substitute for it; bees kept in confinement and fed on pure sugar, will thrive and void little or no excrement; but as soon as pollen, or food containing the farinaceous element is given them, their bodies will become distended, and instead of a transparent fluid they will void a fluid of a darkish tint, which will soil their hives and emit an unpleasant smell. I once kept about 300 bees in a c[illegible] with a queen, and gave them only pure sugar and wate[illegible] They built comb and seemed quite contented, the cage emitting no smell at all. In order to start brood-rearing I gave them some sugar-candy containing flour, and they got uneasy very soon, and tried in vain to get out. At this time the cage gave off quite an unpleasant smell, and so they were allowed to fly; had the pollen element not been given them, I presume they would have stood the confinement for a month or more. I once wintered a fair colony of bees on stores of pure sugar syrup, and when they flew in the spring there was no perceptible spot on the white snow about their hives. They had no pollen, and, of course, no brood-rearing could go on without it.' We shall be quite content to leave our bees without artificial pollen, until it is time to set them breeding for good and all—perhaps by the middle of February.—Ed.

† This is a point on which we are sorry to disagree with Mr. Cowan. We consider the circulation of air (and heat) round the frame-ends to be, next to the close-fitting crown-board, the chief cause of winter disaster with bees, and a great factor in numerous summer evils. We hoped that question had been long since settled in England, and are glad to say it is now prominent in America, as may be gathered from the following quotation from the (American) *Bee-keeper's Magazine* for October: 'It is our belief that bees need different treatment to winter in frame-hives from what they do in the old box-hive [or skep.—Ed.]. With combs nearly straight from front to rear, with unfilled space at each end of the frames, the hives are necessarily much colder; and not only that, but bees cannot cluster so compactly with combs in such shape, and when spread out between four or five straight sheets of comb, the changes in temperature of our winters affect them much more if a suitable method of giving protection is adopted.'—Ed.

Mr. Lyon: In the case of skeps, there is no circulation there.

Mr. Cowan: The skeps generally are dome-shaped, whereas the hives are flat, so that there would be a much larger amount of heated air at a lower level in the straw skep than in a flat-topped hive.

Mr. Lyon: There is no circulation, the combs being attached to the sides.

Mr. Hunter said he could not quite agree with Mr. Cheshire as to the necessity of pollen for comb-building.

Mr. Cheshire: I did not say so.

Mr. Lyon: That is the impression left on my mind from what you said.

Mr. Cheshire: I said it was desirable, not necessary.

Mr. Hunter said, as to its being a necessity for brood-raising, he did not think there could be a question. His own stocks had suffered very considerably in the spring from the very want of pollen. Last autumn he made several stocks from driven bees, and they were very strong; but being unable to get out in the winter to take the artificial pollen he placed in the garden, the breeding stopped entirely, and stock after stock suffered from sheer dwindling. On examination, he did not find pollen in a single cell, and his impression was, they had eaten all the pollen there was in the hives, and then stopped breeding from the want of it. There could not be a question that, for breeding purposes, pollen was everything to be desired. If he had tried Mr. Cheshire's plan he believed he could have saved his stocks.

Mr. Cowan said the Rev. E. Bartrum, who had been obliged to leave, desired him to say that fern-leaves were an excellent means of packing hives in winter, and for preventing the collection of insects in the hives.

Mr. Cheshire said one stock of Ligurians fed on artificial pollen in the spring took to it immediately when it was placed in the garden this autumn, and he could now make two big stocks out of that one Ligurian stock. And from what he had seen of the rapid breeding where he had given pollen as described, he should be much disappointed if all his hives were not ready for swarming at the beginning of next April. Of course, chemistry at once answered the question—Can brood be raised without pollen? Brood contained nitrogen, sugar contained none; and animal tissue could not be formed on sugar alone.

Mr. Abbott said he only hoped this mode of feeding bees with pollen would not be hastily adopted, otherwise some people would be stuffing their hives with pollen under the idea of increasing breeding; but he thought bees were better stimulated by introducing pollen in small quantities.

Mr. Cheshire said he believed it was possible for a large quantity of pollen to be in hives without the bees knowing it.

Mr. Hunter said he remembered a writer in the *Journal of Horticulture* saying that, contrary to bees wanting pollen, the greatest curse was they had too much.

The Chairman: Will any gentleman state his experience of keeping bees in any other modes?

Mr. Hunter said the Germans and Americans had tried feeding bees on flour mixed with sugar, and barley-sugar made into a cake; and they say it answers admirably.

Mr. Lyon said some time ago a case was mentioned in the *Journal* in which condensed milk was tried for feeding purposes. Had that been followed up?

Mr. Abbott said he had seen bees besiege a cage in which there was a parrot fed on bread and milk and sugar.

Mr. Baldwin said it was not uncommon to find hives with too much pollen in them. He had found pollen so hard that the bees could not remove it.

Mr. Lyon: I have seen pollen thrown out in spring in hard pellets.

Mr. Cheshire: That is the unfit pollen.

Mr. Hunter: Milk and egg diet is carried on to some extent in Germany.

Mr. Manning asked what was the experience of members with regard to woven hair-cloth, and also what was considered the best material for a quilt; and likewise, what was the most practical method yet adopted for promoting upward ventilation?

Mr. Abbott said he had never found any material so good as woven hair-cloth for the first layer of a quilt. Next to that was the hair-cloth, such as was commonly used for covering chairs, with the smooth surface down. This was almost as good as the other. Hair-cloth was positively indestructible by bees, and it retained its character almost for ever. For placing next to that, he considered the best material was house flannel. It was imperative to use materials as light as possible, so as not to crush the bees. Another advantage of hair-cloth was, that the bees could be fed through it. He knew of nothing so good as a quilt for upward ventilation, and the thickness of it could be regulated according to circumstances.

Mr. Manning further asked whether any simple plan was devised to prevent the bees going abroad too soon.

Mr. Abbott said, one means of preventing bees from flying out on every gleam of sunshine would be to shade the entrance to the hive.

Mr. Glennie explained a very simple and effectual mode of shading the entrance of the hives.

Mr. C. J. Stevens spoke on the point of ventilation, remarking that last winter he had two stocks, one in a moveable frame and the other in a skep, and when they were removed from winter quarters the skep stock was the stronger of the two. He further adverted to the question of propolising.

Mr. Abbott said it simply amounted to this, if there was a crevice through which the bees could not pass they would propolise; but if the crevice were larger than they required to pass through, they would build comb.

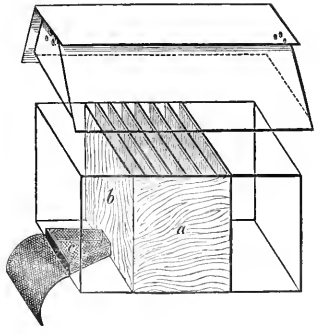
The honorary secretary said a gentleman wished to know in what proportion salicylic acid was used to prevent fermentation, and also to prevent foul brood.

Mr. Cowan: The recipe was given in full in the *Journal of Horticulture* of the 2nd October.

Mr. Abbott explained a plan for preventing a draught of air through the hive from the front. The frames he would place crosswise at the back of the hive, there being a tunnel from the entrance to the division-board, made of perforated zinc or some other similar material, to allow the wind to pass through the entrance without materially affecting the whole of the hive.

Mr. Cheshire said he should demur to the way in which this plan would act.*

* Our proposal for lessening the draught through a hive during a time of wind and storm may be better understood by reference to the woodcut below, the outline of which



Mr. Lyon said the object was, that in the case of unusual wind the air should not go to the bees, but into the outer hive through the perforations in the funnel. He recommended an enclosed flight-chamber, in which the bees could exercise themselves without being exposed to the cold air.

Mr. Cowan: That is one of the principles of Mr. Abbott's new hive.

Mr. Abbott said he considered a flight-chamber a great advantage. His idea was to have a perfectly dark cavity (a box would do) immediately outside the hive entrance, so that bees coming to the front would find it, as it were night, and would not desire to stir abroad: he thought that, properly ventilated, bees in that case would be as well off as if in a cellar, and would not be so uneasy as if confined to their hives.

The discussion then closed; and on the motion of Mr. Glennie and Mr. Hunter, a cordial vote of thanks was given to Mr. Cowan, who was ever ready with time, labour, or expense, to promote bee-keeping and the interests of this Association. A similar compliment to the Chairman on the motion of the honorary secretary, and to Mr. Cheshire, brought to a termination a pleasant and instructive conversazione.

NOTTINGHAM AND NOTTS BEE-KEEPERS' ASSOCIATION.

(*Communicated.*)

The first show of the above Association was held in the beautiful grounds of the Nottingham Arboretum on Friday and Saturday, Sept. 5th and 6th. The bee-keepers of the 'Lace Metropolis' deserve great credit for their boldness in their endeavours to advance the knowledge of bee-culture, for we do not find many associations which in the first year of their existence have the courage to organize a two days' exhibition without any backing up from kindred associations. It was at first intended to hold

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presents a hive capable of holding a large number of frames that run cross-wise to the entrance, and which can be used as a twin hive if required. It is, in fact, a hive on our 'Combination' principle, which permits of many facilities not otherwise attainable, and the plan suggested we intend to carry out in all our hives in which it is practicable, feeling convinced that it will save bee life by preventing the wear and tear caused by cold, and that consequently bee food will be economised to the utmost. In the hive it will be observed that the frames of comb forming the brood-nest (*a*) are set back some distance from the entrance, but are connected therewith by a passage (*c*) made of perforated zinc leading from it (the entrance) to an opening cut into (or out of) the close-fitting inner front (*b*), there being a similar dummy (intact) at the back of the brood-nest to prevent draught in that direction. Now we will suppose that the bee-nest (*a*) is well furnished with stores, the quilt properly arranged, and the roof adjusted, and that a cold wind is blowing directly against the hive front: and then our argument is that the cold air which rushes through the hive entrance proper, will, in great measure, be dispersed and escape over the bee-nest and out of the ventilator on back of the roof, without necessarily passing through the nest itself; but to this conclusion Mr. Cheshire demurred. To our mind it appears commonsensible and feasible, and many to whom we have shown it agree with us; but Mr. Cheshire declared it to be against the law of pneumatics, and held, on our suggesting as a parallel case, that a person carrying an umbrella, with a little hole in it, would feel as much cold wind through the little hole, as if he had no umbrella at all. We have one other suggestion to add to the plan proposed, viz. that in lieu of a wooden alighting-board, which will form an angle with the entrance front, and force the wind into a hive entrance, a piece of perforated zinc should be substituted which will let the pressing air pass through, and always present a clean, dry alighting-place, which will harbour neither vermin nor *débris* of any kind from the hive.—Ed. *B. B. J.*

the show in conjunction with one of the horticultural meetings of which Nottingham is by no means deficient, but the dates fixed for the horticultural displays were all judged to be too early in the season for a bee show; and so our Nottingham friends chose a bolder line of conduct and resolved to have an independent exhibition of their own: a resolve which was well supported by the kind manner in which Mr. Rogers, the lessee of the Arboretum Refreshment Room and Pavilion, offered the use of the latter for the purpose.

The pretty refreshment rooms of the Arboretum are fashioned in very humble imitation of the Crystal Palace, with a stone centre building having glass corridors stretching from it on either side some 200 feet or more; and it was in the eastern one of these corridors that the hives, honey, and apiarian appliances, were exhibited, while the driving competition, and the manipulations generally, were conducted in a paddock adjoining, which on gala days is devoted to 'monster balloon ascents.'

The Duke of St. Albans and Capt. Rolleston kindly assisted in the good work by furnishing the committee with splendid ferns and flowering plants for decorative purposes, and their horticultural beauties were freely and appropriately interspersed amongst the products of the busy bee.

In the classes for hives and bee furniture Messrs. Neighbour and Sons were in strong force, taking the first prize in Class 3 with their Philadelphia hives, and also first prize for the most complete collection of hives and bee furniture (Class 8.)

Mr. R. Steele obtained second prize in Class 3 (for the best and most complete hive on the moveable comb principle) with his larger 'Eclectic Hive.'

In Class 4, for the best complete hive on the moveable comb principle for cottagers' use, to include cover and floor-board facilities for storing surplus honey (price not to exceed 10*s.*), the first prize was awarded to Mr. H. Fuggle for a hive, which, if we mistake not, was marked at 6*s.* 6*d.* complete. The second prize in the same class fell to Mr. R. Steele of Dundee. Straw hives on the moveable comb principle (Class 5) were represented only by Messrs. Neighbour, who exhibited a round hive with moveable slots, furnished with a super to match (somewhat after the Stewarton form), which, with floor-board complete, was marked at 4*s.* 6*d.* Mr. R. Steele and Mr. H. Fuggle both showed their extractors, the latter taking the first prize for 'Extractors for Cottagers' use.'

The first and second prizes for the best super were awarded to Mr. Sells of Uffington; and the third to Mr. W. Sells, who showed some pretty and novel round china sections.

Many other articles not for exhibition were shown, including sectional supers, slow and rapid feeders, feeding-stages, &c; of slow feeders the best was one of Neighbours, consisting of a tin can perforated at the bottom with five holes, which rested on a vulcanite stage in which a slot is cut to correspond with the row of holes in the can bottom. The can is fixed upon the stage so that it can only move backwards and forwards in the line of holes, and it is furnished with a pointer which moves over an indicator when the can is shifted, and shows on the indicator how many holes are over the slot in the stage; by a touch of the finger on the pointer the bee may be fed from one, two, three, four, or five holes at will. In rapid feeders quite a large exhibit was shown by a local bee-keeper, Mr. W. Talbot, of Nottingham, one of this gentleman's exhibits (a bottom feeder) was made to fit in the floor-board, which it nearly covered, while a tube from the feeder was carried to the back of the hive and ended in a small covered funnel where the supplies could be poured in. Another noticeable article was a top feeder for the old-fashioned dome-topped skep: a hole was cut at the top of the dome, and a perforated zinc cylinder, about an inch deep, with perforated zinc bottom, is inserted, the cylinder being supported by a flange of zinc

resting on the top of the dome, in this feeder a quart pickle bottle rested quite snugly and securely without any stage or other support whatever. When not in use for feeding the zinc cylinder could either be plugged or filled with a ventilating but warm material.

In the classes devoted to honey exhibits, the show was very creditable, but the amount of this year's honey shown may be put down as *nil*, as the committee, finding that there were no entries made, very wisely withdrew the usual restriction in the interests of the show. The lion's share of the prizes was carried off by the Messrs. Sells of Uffington, and Mr. Musters of Annesley Hall was awarded a special prize for a fine super weighing 16 lbs. Amongst the honey exhibits, there was one of about a dozen 1-lb. jars of extracted honey shown by our friend, Mr. R. R. Godfrey of Grantham, (who is always to the fore), but which was marked, 'Not for competition or sale.' This exhibit was staged by Mr. Godfrey in order to show what an attractive form our honey could be made to assume with a little care. The jars were of an inexpensive but clean and pretty character, with nice glass lids, each jar being tastefully finished off with a neat label. The exhibit was a capital lecture in itself, and one which it is to be hoped the Nottingham bee-keepers will profit by. The writer repeatedly heard the question asked if these jars of honey were for sale; and they could no doubt have been sold over and over again, simply from their attractive appearance. Samples of American honey, both in sections and in jars, were also shown by Mr. Godfrey, who kindly allowed the visitors to taste the difference in flavour between the imported article and that obtained from English clover or heather. Mr. Godfrey's diagrams, showing the anatomy and physiological characteristics of the honey-bee and kindred insects, occupied a conspicuous place at one end of the large corridor, and claimed a large share of the attention of visitors.

Proceeding to the paddock where the driving, &c. took place, we found ourselves in a small square field of about a quarter of an acre, round two sides of which were ranged about thirty hives of all kinds, from Abbott's Standard down to the antediluvian skeps. Neighbours' Philadelphia and their well-known No. 5, Pettigrew's big skeps, and home-made hives of various kinds, were here shown full of bees, some for competition, some for driving purposes. There was one novelty here noticeable in the shape of a German moveable comb hive containing bees, brought from the Austrian Tyrol, and which the owner, Mr. F. Spencer, of Beeston, called 'Khraner bees.' The hive itself was an object of interest to the bee-keepers present, and caused some free comparisons to be made between it and our own bar-framers. The hive, which stood upon a four-legged stand, had very much the appearance of a gas meter, or rather the box with which our household meter is covered. When the door of the hive was unlocked and opened (in a manner which bore out the meter resemblance very much), the whole of the interior was seen to be like a small cupboard with one shelf dividing the lower and longer portion, which is used as the brood nest or pavilion, from the smaller upper portion, which is the supering apartment. Both these divisions are fitted with frames, which slide in from the front, and rest on rabbets, top and bottom. Thus the top of the hive is never removed, and the frames cannot be lifted out as in the English bar-frame hive, but are always fished out from the front with a pair of pliers. The first prize for foreign bees was awarded to Mr. Spencer for the bees in this hive. For English bees in observatory hive, Mr. W. C. Cheshire, the hon. sec. of the Association, took first and second prizes.

The driving competition began about 2 p.m. (by which time a considerable number of visitors were present), and was continued all the afternoon; the successful competitors being Mr. Thos. Roberts, of Retford, who drove and captured the queen in eight minutes, the second prize was awarded to Mr. W. C. Cheshire, of Gedling.

Most of the bees which were driven during the day were transferred to bar-frame hives by Mr. J. Phipps, of Arnold, and other members of the Association, who, with their shirt-sleeves rolled up, astonished the visitors by the facility with which they cut up the hive and transferred the combs and living bees. On the second day, Saturday, a number of hives were driven and transferred for persons who had purchased bar-frame hives at the exhibition, and had brought their bees to be put into them.

The driving operations were, as usual, the most popular part of the exhibition, though it required some courage on the part of the strangers to approach the operators, for the only protection provided was a gauze fence about eight feet high over which the bees of course came and scoured about the fields by thousands. If the perfect security of the British Bee-keepers' Association's bee tent had been afforded, the enjoyment of this, the most instructive part of every bee show, would have been complete. Notwithstanding this slight drawback the general arrangements of the exhibition were very good, and reflect great credit upon the committee of the Association and its secretary, Mr. Cheshire, to whose indefatigable exertions the success of the exhibition was mainly due. The members of the committee, including Messrs. Phipps, Ward, Baldwin, Talbot, Sissling, and others, were most courteous in their attention to visitors, and were busily engaged both days in explaining the nature of the exhibits to numerous inquirers. The sales effected were very satisfactory, the exhibits of Messrs. Fuggle and Steele being all cleared off, and several of Messrs. Neighbour followed suit. The whole of the honey staged for sale was disposed of, and the cry of visitors was still for more.

Although it is to be feared that the committee will be losers financially by their praiseworthy effort to advance the cause of humane bee-culture in this district, still the good seed has been sown, and the readers of the *B. B. Journal* may safely consider Nottinghamshire as another district in which the humane culture of the honey bee has become an established fact.

The judges were Mr. R. R. Godfrey of Grantham, and Mr. T. Roberts of Belvoir, acting for Mr. W. Ingram, who found himself unable to attend.

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION AT THE LONG SUTTON AGRICULTURAL SOCIETY'S SHOW.

The Lincolnshire Bee-keepers' Association held its fourth annual exhibition of honey, bees, hives, &c., and practical apiarian manipulations, in conjunction with the Long Sutton Agricultural Society's Show at Long Sutton, on Wednesday and Thursday, Oct. 8th and 9th, 1879. And we are pleased to report that notwithstanding all the discouragements arising from the unpropitious season it has proved a great success. At one time, indeed, there were fears lest it should be held at all; but through the indomitable energy of the hon. sec., R. R. Godfrey, Esq., of Grantham, aided by the willing efforts of an influential committee, all obstacles were overcome, and the Lincolnshire Bee-keepers' Association has well maintained its prominent position amongst provincial Societies.

Early on Tuesday morning, the honorary secretary, R. R. Godfrey, Esq., and the committee, comprising Messrs. H. Yates, Brett, Bolton, Plowright, and Alsop, sallied forth from Grantham, bound for Long Sutton, to make arrangements, and prepare for the opening day. On reaching Long Sutton they were shown to their quarters, which fortunately had been previously secured for them, and soon set to work in real earnest to unpack and stage the large number of exhibits, which was no slight task to do in a tent. It was somewhat more than pleasing to see such gentlemen as Mr. Yates, Mr. Brett

Mr. Bolton, and Mr. Plowright, with their coats off and working most energetically, to have the show up to the standard of the Lincolnshire. It was only by the thoroughgoing pluck of Mr. Yates that the heavy work was got through. All honour to such men who make it their pleasure to leave important business for the good of our cause.

The show was far larger than was ever expected, which proves that the Lincolnshire Association is, and we hope will continue to be, looked upon as one of the most important gatherings. The Long Sutton Agricultural Society had not only offered such liberal inducements, but showed so strong a desire to help the Association, that it would have been most unwise to have refused their invitation to take part in their annual show. The Association have good reason to be well pleased with their visit to Long Sutton.

We extract the following remarks from the *Lincolnshire Free Press*:—"On looking round at the several objects of interest, our attention was directed to the "comb foundation." This is specially prepared for fixing in the new hive to induce regularity in the formation of comb. It is now one of the principal points in exhibits of this kind that a perfect regularity of shape should be given to the comb, and to obtain this a beginning upon "comb foundation" is devised; this, again, is further provided for by the ingenious use of what are called "separators," or plates of metal or strips of wood, so placed that the bees must work their combs evenly. Numbers of beautiful specimens of "sectional supers" were exhibited, in which these several features were admirably shown. In size the "sectional supers" would be about five inches or more square; each held a perfect comb, well filled with the purest white honey, just ready, as it was temptingly observed, for the breakfast-table. Passing on, further objects of interest met the curious eye. The splendid bar hives were especially worthy of notice; indeed, one could not forbear the expression of a very high commendation upon these exhibits, if only as works of art. They do infinite credit to the exhibitors, Messrs. Hooker, Abbott, Neighbour, and others. These gentlemen must have devoted immense care and attention to the working out of these elaborate designs. Cottagers' bar hives were also shown by these and other makers. It is very much to be desired that our cottage bee-keepers would connect themselves with this Society; the trifling annual cost should be no bar to the sources of information and profit which it affords. The superiority of the modes of dealing with bees by the use of the bar-hive cannot be too strongly impressed upon our cottagers. Very fine and superb specimens of observatory hives of Ligurian, Carniolan, and also English black bees, were exhibited by Messrs. Abbott, of Southall; Neighbour and Sons, of London; Messrs. Brett, Plowright, and Yates, and the Hon. Secretary, Mr. R. R. Godfrey, all of Grantham,—and proved most attractive, as they usually do. To particularise all the exhibits would tire our readers. We noticed, however, an elaborate collection of instruments used in bee-manipulation, such as smokers, quieters, feeders, &c.'

A lecture on the 'Early History of Bees and Honey' was delivered on the previous evening by William Carr, Esq., of Newton Heath, near Manchester, in the Corn Exchange. After giving an historical account of bee-culture from the earliest times to the present, he gave a brief account of the development of modern British and foreign bee culture, remarking that great credit was due to America, who had decidedly taken the lead in this matter. Mr. Carr spoke strongly against the barbarous practice of bee murder, and urged his audience to at once commence bee-culture upon the modern bar-frame system.

The following is the list of awards:—

BEES.—For the best stock, or specimen of Ligurian bees, to be exhibited with the queen in an Observatory hive—1, Abbott Bros.; 2, G. Neighbour and Sons. For the best stock, or specimen of English bees, to be exhibited with the queen in an Observatory hive—1, S. J. Baldwin; 2, G. Neighbour and Sons; 3, J. Plowright. For the best stock, or specimen of any distinct species of honey bees, other than Ligurians or the British black bees, to be exhibited with the queen in an Observatory hive—1, Neighbour and Sons.

HONEY.—For the largest and best supers, the produce of one hive—1, Wm. Sells. For the best glass super, under 20 lbs. nett weight—1, W. Sells. For the best glass super under 10 lbs. nett weight—1, Samuel Thorne; 2, Wm. Sells; 3, ditto. For the best wood, or wood in combination with either glass or straw, super of honey—1, Wm. Sells; 2, ditto; 3, Thos. Sells. For the best exhibition of honey in supers, or sections of supers, separable, in the most attractive form, and each not more than 3 lbs. in weight, the total weight of each entry to be not less than 12 lbs.—1 and 3, Samuel Thorne; 2, Wm. Sells; 4, ditto; 5, Thos. Sells. For the best glass of extracted or run honey, of not less than 5 lbs. nett weight, quality to be the chief point of excellence—1, Wm. Sells; 2, Rev. G. Deeds; 3, Rev. W. A. Frith; 4, H. Tuck. For the best and largest exhibition of extracted or run honey, in glass or other jars, quality as well as weight to be taken into consideration—1 and 2, Wm. Sells; 3, F. Cheshire; 4, W. Sells; 5, Rev. W. A. Frith; 6, Thomas Sells. For the best and largest exhibition in all or any of the honey classes, or honey taken without destroying the bees—Silver cup of the Association, Wm. Sells, Uffington. For the finest sample of pure bees-wax, in cakes of not less than 2 lbs.—1, H. Tuck; 2, Wm. Sells. For the best liqueur, wine, or mead made from honey, with the recipe attached—1, H. Tuck; 2, R. R. Godfrey; 3, Wm. Sells.

HIVES.—For the best hive for observation purposes—1, Abbott Bros.; 2, C. N. Abbott. For the best complete hive, on the moveable-comb principle, with facilities for storing surplus honey—1, J. M. Hooker; 2, Abbott Bros.; 3, Neighbour and Sons. For the best and cheapest complete hive, on the moveable comb principle, suitable for cottagers, price not to exceed 10s.—1, H. Fuggle; 2, S. J. Baldwin; 3, Neighbour and Sons; 4, Abbott Bros. For the best and cheapest straw skep, of any description—1, Thos. Sells; 2 and 3, W. W. Young. For the best and cheapest sectional supers for producing honey in the comb in a saleable form—1, S. J. Baldwin; 2, J. T. Kinnear; 3, Abbott Bros. For the best honey extractor, portability and cheapness to be considered—1, W. W. Young; 2, J. Walton; 3, C. N. Abbott. For the best and most complete collection of hives, bee furniture, and apiculturist's necessaries—1, Abbott Bros.; 2, W. W. Young; 3, Neighbour and Sons. For the best and most interesting collection of natural objects, models, or diagrams, connected with apiculture, and illustrating the natural history and economy of the honey-bee—1, D. J. Godfrey. For the best and largest display of honey-producing plants, in dried state or otherwise, such plants to have a card attached, stating time of flowering, duration of bloom, and any other particulars calculated to be of interest to bee-keepers—1st prize, R. R. Godfrey; 2, W. Ingram: commended, Miss E. Rooke. Extra exhibits—Special prize, A. J. King, bee-feeder; special prize, F. Cheshire, Acton, improved frame; commended, J. Plowright, for bee-feeders; commended, A. J. King, for improved direct draught bee-smoker.

BEE FLORA.

37. *Crataegus Oxyacantha* (Hawthorn, or May).—Comes into bloom about the middle of May. Lasts about a month; very much frequented by bees. A buff-coloured pollen is obtained from the May.

38. *Crataegus Oxyacantha punicea* (Red May or Thorn).—A greater favourite with the bees even than the white thorn. Comes into blossom towards the end of May, and remains barely three weeks in bloom. The bees obtain a profusion of buff-coloured pollen from it.

39. *Myosotis palustris* (Forget-me-not).—A very

favourite flower with bees. Gives honey and pollen. Blooms from very early in the year up to the middle of June.

40. *Lamium album* (White Dead Nettle).—In flower the greater part of the year; but chiefly in May and June; yields much honey.

41. *Syringa vulgaris* (Lilac).—Visited by bees, but very little. In blossom for ten days in May.

42. *Cytisus Laburnum* (Laburnum).—Laburnums usually bloom in May, and may be seen in blossom for about three weeks. Rather a favourite with bees; affords an orange-coloured pollen.

43. *Æsculus Hippocastum* (Horse Chestnut).—These trees usually begin blossoming in May, and are to be seen in beauty for about four weeks. They are much visited by bees and afford honey.

44. *Æsculus rubicunda* (Red Horse Chestnut).—Flowers rather later than the white chestnut, and remains rather longer in bloom. An equal favourite with the bees.

45. *Fraxinus Ornus* (Flowering Ash).—In May or June this beautiful tree is a sheet of blossom, lasting a fortnight. It affords a yellow pollen. The roar of bees in this tree resembles that made by a swarm.

46. *Weigela rosea.*—Comes in towards the end of May, lasting one month. Not a favourite with bees, though they visit it and obtain a small supply of honey.

47. *Berberis dulcis* (Barberry).—Blossoms in April, lasts a fortnight, and gives honey.

48. *Laurus nobilis* (Bay-tree).—The bay-trees are in blossom through May, and afford a moderate supply of honey.

49. *Ilex Aquifolium* (Common Holly).—The hollies bloom in May, and last for three weeks. Bees visit them in swarms, and obtain large supplies of honey from them.

50. *Berberis Darwinii* (Barberry).—Blooms in May for about a fortnight, and again in autumn. Yields honey.

51. *Trifolium pratense* (Common Purple Trefoil).—Blooms in May, and throughout June, and part of July. It affords honey.

52. *Tulipa* (Tulip).—When these flowers are in blossom early in spring, bees visit them and obtain pollen; but later on they are disregarded.

53. *Anemone coronaria* (Common Anemone).—Flowers from very early in the spring until the middle of June. Bees get a black pollen from it, but it is not a favourite.

54. *Thymus vulgaris* (Common Garden Thyme).—In bloom through June, and July in the first week. Bees obtain honey and a yellow pollen from the thyme. It is a favourite flower with them.

55. *Cerasus Padus* (Bird Cherry).—In blossom for one week in June. Bees visit it much, and obtain a yellow pollen.

56. *Crambe maritima* (Seakale).—Bees get a yellow pollen from the seakale. It comes into bloom in June, and lasts through the greater part of July.

57. *Faba major* (Broad Bean).—Bees work on the back of these flowers through holes pierced by other insects. In bloom through the summer. Yields honey. Not a favourite.

58. *Dianthus plumarius* (Common Pink).—Duration of bloom, about two months. Pinks yield honey, and bees may often be seen on the back as well as the face of the flowers.

59. *Polygonum fagopyrum* (Buckwheat).—Blossoms through June or July, according to the time sown, and yields honey.

60. *Trifolium repens* (White or Dutch Clover).—In bloom in June, July, and August. This is the best of bee-flowers, and affords abundance of honey of the lightest colour, and beautifully clear.

61. *Reseda odorata* (Mignonette).—One of the best of bee-flowers. In bloom from June to the end of autumn. Yields beautiful honey and abundance of pollen.

62. *Borago officinalis* (Borage).—Comes in June, and lasts through the summer. First-rate bee-flower, yielding large supplies of honey.

63. *Asparagus officinalis* (Asparagus).—Asparagus is in bloom in July for about three weeks, and is visited by the bees.

64. *Phacelia tanacetifolia* (Phacelia).—A great favourite with bees, yielding abundance of honey. In bloom from June to October.

65. *Wistaria sinensis* (Wistaria).—In bloom about a week in June. The bees obtain honey from the Wistaria through little holes pierced at the back of the flower by other insects.

66. *Cerasus lusitanica* (Portugal Laurel).—Blooms in July for about a fortnight. Affords the bees honey and pollen.

67. *Castanea vesca* (Spanish Chestnut).—Flowers for about a fortnight in July, and is very much visited by bees for the pollen that it affords.

68. *Campanula medium* (Canterbury Bell).—Blossoms towards the end of June and throughout July. Is a very great favourite with bees.

69. *Buddlea globosa* (Buddlea).—Blossoms about the last week in June for rather more than a fortnight; is rich in honey, and always covered with bees.

70. *Rosmarinus Officinalis* (Rosemary).—Remains in blossom many weeks, and is a favourite with bees.

71. *Lotus corniculatus* (Bird's-foot Trefoil).—Blossoms in June till nearly the end of July. This trefoil yields honey.

72. *Tilia europæa* (Lime).—Blooms in July, lasting about a fortnight. Immensely attractive to bees, producing large quantities of honey, which is rather dark in colour.

73. *Erica Tetralix* (Cross-leaved Heath).—In bloom through July and August. Honey is afforded by this heath.

74. *Rubus fruticosus* (Bramble or Blackberry).—In flower throughout July and August, and of the greatest value to bees.

75. *Ulex europæus* (Furze or Gorse).—Furze is chiefly in bloom during the spring months. Bees frequent it, and obtain from it a yellowish brown pollen.

76. *Erica cinerea* (Fine-leaved Heath).—Invaluable as late pasture for bees, producing quantities of thick, dark honey. In bloom from July to September.

77. *Hedera Helix* (Common Ivy).—The ivy flowers in October, and remains till destroyed by frost. It produces quantities of honey, and is immensely visited by bees.

78. *Thymus serpyllum* (Wild Thyme).—Yields abundance of aromatic honey. A great favourite with bees. In bloom throughout July and August.

79. *Melilotus leucantha* (Melilot Clover).—Valuable bee-plant; blossoms late in the year, continuing until destroyed by frost. Produces abundance of honey.

[The foregoing, continued from page 120, is the list and description of the Bee Flora arranged and exhibited by Miss Rooke, of Lymington, Hampshire, at the British Bee-keepers' Show at South Kensington, in July last, and to which the judges awarded their silver medal, and a gold one in the form of one pound sterling. The collection is a very excellent one, and shows great taste and skill in its drying and arrangement. Up to the date mentioned it had not been equalled at any show; but its appearance gave such a stimulus to the art that it has not since been awarded a first place. Miss Rooke deserves the thanks of bee-keepers for this valuable contribution, which gives both the technical and common names of the flora described. We are aware that Miss Rooke has not by any means exhausted the British Bee Flora; and we would gladly give insertion to further contributions on the same subject from other correspondents, only suggesting that the clear plan and compact mode of description adopted by Miss Rooke should be observed.—Ed.]

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

WINGLESS QUEEN.

On examining my hives a few days ago, previous to wintering, I discovered a queen without wings, one evidently born thus, there being no sign or rudiments of wings. She was at the head of a first swarm of the present year, which I recollect alighting on, and afterwards clustering beneath, a small pyramidal pear-tree. On then examining the queen, I could discover no defect in her wings or elsewhere, and, placing her on a branch, the bees soon surrounded her, and the swarm was safely hived, and continued to do well.

This queen was in her third year, and has evidently deceased, leaving the wingless one to take her place. The latter I destroyed at once, without introducing another, from want of time and opportunity—there being about a dozen drone brood in one of the combs, upon which I found this morning, after an interval of seven or eight days, five perfect queen-cells, with drone-brood in each. These, of course, I have destroyed, and introduced another queen.

Here we have a clear case of parthenogenesis, as this wingless queen could never have mated. I have not met with, or heard of, a similar case. Is it not singular?—GEORGE RAYNOR, *Hazeleigh Rectory, Oct.* 24.

[We have read in the *American Bee Journal* of queens that have been unable to fly becoming fertile and prolific, the opinion on the case being that as she came forth intent on wedding, and fell from the alighting-board, the fact was accomplished, and that she must have crawled back into the hive.—ED.]

UPWARD VENTILATION.

In recommending upward ventilation for wintering, what height do you find quite safe to lift the hive from floor-board? My usual practice is five-eighths of an inch. Mice, and snails, and large slugs are thus excluded, and the carbonic acid gas and other obnoxious impedimenta have means of exit. Kindly give me a word of advice as an authority, and I will adhere to the same.—J. D., *Croydon.*

[Before we introduced the quilt into general use in England we used to raise our hives from their floor-boards a very trifle to let the water formed by condensed vapours escape; and the crown-boards also were raised or slid forward to permit the escape of noxious gases; but since finding out the value of the quilt as a means of gentle upward ventilation we have abandoned all other plans, and rely solely on it and a free current of air above it. Five-eighths of an inch is surely too much to raise a hive except during a grand honey harvest, and will most likely lead to robbing.—ED.]

BEES' VAGARIES.

Can you explain the following? If so, I shall feel obliged, as it has puzzled me not a little.

I had in June last seven stocks of bees: one a Ligurian and six blacks. I gave all the brood and bees, except the queen, and two frames to a strong stock, in order for them to fill a super, which, of course, weakened the Ligurian stock very much. Some time in July, before they (the Ligurians) became any way strong, I found one queen-cell in progress; I then took the frame containing same and one other, bees and all, with four others from another hive, to make an artificial swarm, the Ligurians being again weakened thereby. I left them for some time until August 13, when I took one frame of bees with queen to show at a flower-show at Bradford, in observatory-hive; on returning the queen and frame next morning to hive I found five royal cells commenced. On the 20th, being one week after, I took the queen, &c. to Trowbridge Flower Show; when returned next morning, found two more royal cells commenced, the other five being sealed. On the following Sunday, August 24, I found one queen hatched out (which I took away) of the five cells, the other four cells destroyed, the last raised two remaining intact, the old queen being in the hive all the time (except, as above stated, when taken to show) until the following Monday, Sept. 1, I opened the hive again, when I found another fine young queen hatched and the other cell destroyed; but another cell I discovered about four days old, and the old queen gone, which I found dead next day outside the hive.

Why did they raise queen-cells when weak, and, of course, no idea of swarming; and why did they not destroy the queen-cells after having the old queen restored? And lastly, did the queen die a natural death, or did the bees or young queen destroy her? or is it possible that they knew she would soon die, and thus prepared for the event, she being three years old and very prolific to the end?—A. ADAMS, *Union Street, Melksham.*

[We think you have hit upon the solution of your problem: there is really no accounting for the freaks of bees sometimes; but in this instance there appears to be a good reason for what they did. It is at the same time probable that the repeated weakening of the Ligurian stock tended to cause the catastrophe by making it appear that the queen was worse than she really was.—ED.

The foregoing was our reply to the tangled question; but our correspondent wishes the matter to be further ventilated. Can any one offer a solution?—ED.]

THE SEASON.

I find that all my bees have required liberal feeding to prepare them for winter. The case is the same wherever I have been, in Monmouthshire, Pembroke, Devon, and Somerset, and where bees have not been fed they must die out. I have a number of plants of blue campanulas now in full flower, and I find them every fine hour in the day covered with bees. They seem to revel in the bell-shaped blossoms. This flower was not mentioned among others in the list of useful bee-plants printed in last *Journal.* Wasps are scarce this season, but

the few one sees about are particularly large. How careful one has to be this season not to leave a drop of syrup or honey about. I never remember seeing bees so intent on robbery as they are this autumn. Whether the owners will or not, all weak stocks must go to the wall.—P. H. Phillips, *Offley Lodge, Hitchin.*

THE SEASON.

Since I wrote to you before, I hear of hives being dead in all directions. I am now using my sixth stone of moist sugar boiled into syrup, and shall go on feeding as long as they will take it. This consumption is confined to sixteen hives; but then a little syrup is wasted when I reverse the bottles. I am afraid I shall have to contend with another serious difficulty—that is, that, owing to the ungenial weather the bees in a great measure stopped breeding, consequently the hives are not as full of bees as usual at this time of year.—J. Chaloner, *Newton Kyme, near Tadcaster.*

THE SEASON.

I am very sorry to be obliged to endorse the general opinion of the honey-harvest. The bees in this neighbourhood must die if not fed immediately. I have five hives; three original stocks, one a first swarm, one a cast, which was given to me by a lady who did not want any more than she had—two stocks and one swarm. I had the cast on the day it came out. It was not a large one. I commenced feeding it directly, slowly, and it is at present in a very satisfactory condition. My other hives are all right, but only through feeding, which I shall continue to do until they have from 15 to 20 lbs. of food each. During the 'summer' I have been endeavouring to make some converts to the bar-frame principle. I have invited several to see mine, and have shown them the hives and how they can be manipulated; but with very poor results. I believe I have made one convert. About three weeks since, this one asked me to come and see what condition his bees were in. I accordingly went. He had ten straw skeps. I found two dead, one evidently starved to death, the other had been attacked by mice; but none had more than about 5 lbs. of honey, whilst three of them did not appear to have any, so I made an exchange, but I found out afterwards they had about 1½ lbs. each. I gave him a bar-frame hive for these three just mentioned, and supplied him with feeding-stages, and he set to work boiling sugar (your receipt) with a will. I afterwards transferred the contents of two of his straw skeps into the bar-frame, and they are now going on well. The three I had, I transferred two into a bar-frame, and one that had a very large quantity of bees into another bar-frame, and have of course fed them. The lady who gave me the cast asked me to amalgamate two of her hives, not that she wanted the honey, but to have only one hive to keep instead of two. These were bar-frame hives, so there was not any difficulty. To my great surprise, one of these that had not swarmed had quite 14 lbs. of honey; the other, by the side of it, which had thrown off one swarm and the cast mentioned, had only about 5 or 6 lbs. These are instances which I have seen. I have heard of several where the bees have died or were starving; but the owners seem in a very apathetic state about them.—Joseph Torry, *Maidstone.*

THE SEASON.—BEE POISON AND ITS ANTIDOTES.

I have only a few bees here. I have about 140 hives in Gloucestershire: we lost about thirty last spring, not beginning to feed early enough. I never took a pound of honey the whole summer and had few swarms. I planted several acres of turnips for the bees: they had one day fine and a grand feast, the next day they were caught in a storm and I lost thousands; they would never go near the field again. I have been obliged to feed all during the summer, and tons of sugar will be consumed to keep them well over the winter. Bees will be dearer next spring than ever known before; and there will be less in the country by one half than the year before. It is very odd nothing can be found out to counteract the sting of a bee. Dr. Pine's stuff is of no use; neither have I found hartshorn, blue-bag, or tobacco of the least use. My skin is very thin, and after a few hours great swelling comes on. The only thing I have found of any use is at once to press the sting very severely with a key and try to get the poison out, and then use vinegar; this would seem as if the poison was an alkali.—Beale Browne, *Limerick, October* 25.

BEE-GLOVES.—BEES ON WINDOWS.

Having read the letters on 'Bee-gloves' and 'Catching Bees on Windows' in last month's *B. B. J.*, allow me to suggest a cheap substitute for gloves, which I find perfectly successful. I turn up my shirt-sleeves, and rub hands and arms with syrup or sugar and beer, not thick enough to be sticky—all gloves are more or less in the way—and I find the above gives perfect security. Even my little girls, thus protected, fearlessly put their hands into hives to take out broken comb, &c. A tumbler and old post-card beats the lucifer-box hollow for catching bees on windows. The card shutting out light from the window, the bees go to the bottom of the glass. So you can often catch a dozen without letting one escape.—Country Parson.

DRY SUGAR FOR BEES.

A labourer in this village is feeding his bees with dry sugar, which, he says, they devour greedily. The *Journal* for this month says: 'The idea that dry sugar can be stored by the bees is erroneous.' Is this a waste of sugar, or can the bees store it by obtaining water from the leaves of trees or elsewhere, and so form a syrup? The bees are being fed at the top of the hive.—L. T. R., *Tachbrooke, near Leamington.*

[Bees cannot 'devour' dry sugar, but will starve with plenty of it within their reach. As usually offered to bees, it is put into the extinguisher-shaped paper as sold

by grocers; and the pointed end having been pinched off, the packet is stuck into the feed-hole for the bees to take. The odour is, of course, sufficient to tempt the bees into the package, and their endeavours to extract moisture from it renders it dry as dust, and it will thus quickly fall into the hive, and some may possible find its way into empty cells, to be afterwards thrown out by the bees. It cannot be denied that the bees get a little saccharine matter from sugar, but the major part of it is simply wasted.—ED.]

BEE-KEEPING IN AMERICA—WHICH IS THE BEST LOCATION?

I am going out to America again next spring: I expected to have gone sooner, but could not get away. I think I shall settle in South California; and if I do I shall keep a few hundred colonies of bees—or if I find them pay, a few thousands. At any rate I shall invest about 500*l.* in bees as an experiment, and if I find them pay may then give up my other business, and go into them entirely. May I ask if any of your readers will give their experience of the honey-producing power of the States, as some help to me in my selection of a locality in which to pitch my tent for the purpose?—T. G., *Nantwich.*

BEE-KEEPING IN IRELAND.

It may be interesting to you to know that this year has been to bee-keepers in the country surrounding as a year of famine; those who formerly kept from six to twelve hives (common straw skeps) are not *now* in possession of a single one—in fact, I do not see a hive of bees with any one, and I don't think there are a dozen in the whole county of Wexford. Such is the deplorable condition of the bee community in this part of the world. I am happy to say that I have fared somewhat better, for I have two strong hives, weighing about 35 lbs. each, going into winter quarters. Neither of these was opened this year, and had to be fed up to this weight. So much for the *improved* make of hives. —S. F. J., *New Ross, Oct.* 23, 1879.

BEES IN TROPICAL QUEENSLAND.

An extract from a letter I received this year from a station in Northern Queensland, four degrees within the tropics, will answer a question relating to the possibility of domesticating the native Australian bee, which appeared in your issue of this month (August), signed 'Missionary:'—

'My bees at V. H. were still further from a success than yours seem to be. I spent about 10*l.* over them first and last, and never had a spoonful of honey. They "fooled around" outside the hive, and made a great piece of work fanning; then presently an odd one or two, with some pollen on their legs, would drop in, and go into the hive, but they never got as far as bringing in any honey. I fed them with syrup, which they seemed to like. As I did not seem to be successful, I turned them over to the "married couple" who professed great experience with bees; but they did no better than I had done, and the upshot was, that all the bees gradually died out. They never wanted to swarm, nor, indeed, seemed to take any interest in anything. I may mention, that several settlers down the river tried them, but none succeeded. Mrs. A., at Brisbane, had no luck either. I don't fancy that it is such an easy job to manage them well, as it seems to be in the books, which I followed servilely. A swarm of the native bees, not as large as house-flies, have possession of my *Gales* hive, and have been there for about five years, so I hope they are doing well. They don't build combs like English bees, but make a mass of cells, which they fill with peculiarly-flavoured honey from the eucalyptus blossoms. But you must have eaten "sugar-bags," surely. I wish bees did succeed here, honey in the comb is so very excellent. Carroll, the "bee-master" at Brisbane, seems to do what he likes with his bees, and they certainly increase with him, and make lots of honey. I wonder what kind of bee makes the honey that comes from the west coast of Africa. They ought to do well in this climate.'

I may add, that when I was last on this same station, in 1871, we had then a swarm of native bees domesticated in a small cylinder made out of a hollow log, and standing on a bench near the house. Their combs, as I recollect them, consist of an amorphous, spongy mass of brownish wax and bee-bread, with a very small proportion of thin honey. But possibly a closer and more scientific inspection might reveal a less imperfect system of architecture and economy than is at once apparent. The ordinary bee has been a mark for misfortune with us ever since I brought the first hive into that district in 1865. After a voyage of 600 miles, it was placed under our verandah, and the bees did well enough until an unlucky hurricane took place during my absence, and carried off the bees, hive and all, into a swamp distant above a hundred yards. Of the next swarm, the queen was smothered by the combs melting and falling on her during a thirty miles' ride on horseback: and the third I saw dwindle away in the manner described above. How many have shared its fate since I do not know.

About nine months ago Mr. Carroll made an attempt to import six or eight Ligurian queens from Italy; but they all failed, the queen in each instance dying the last, her body being found on the top of the other dead bees.—C. J. S.

BEE-KEEPING IN AUSTRALIA.

I have deferred writing again until now, because I wanted to give you my first year's experience of apiculture, which, alas! is not very promising. I have had four stocks, and now have but one. Two of the stocks I bought, and brought them away from their old, moth-eaten comb. They were, doubtless, a lot of old bees, too weak to be built up into a strong colony with my small stock of knowledge. The moth got into the comb in spite of every precaution, and quickly destroyed them. The third stock was very strong all through the early summer. From that and the fourth I took 80 lbs. weight of honey in a very few weeks; then it became queenless. I tried, by giving frame after frame from the other hive, to induce them to raise another queen; but to no purpose, so at last boxed them with number one, which appears in a very healthy condition. The peach-trees are just coming into blossom, so I hope they will soon begin to make comb for a month or two, now the moth appears inactive. I am obliged to remove the frames where the moth has perforated the comb very much, and allow them to fill the frames with fresh comb, or their breeding space would be very limited. We rode out into the bush a few weeks since to see a large stock of bees we had heard of. There were twenty or thirty hives, with glass backs, not any of the boxes more than half full of comb; the honey had been taken at the end of the season in that way. In some of the hives we

could see moths flying about, and round the sheltered places dozens of cocoons attached. The owner seemed under the impression that they were all right. I should be sorry to see my solitary stock in such a plight. My only hope now is, that I may get a strong swarm or two. I have fed them up very carefully through the wet season. Last year I tried to keep them from swarming, and used them to build up the two old lots I bought. The *Journal* you kindly sent me never came to hand. We wrote to the P. O. here, and made every inquiry to no purpose. I do so hope we may succeed with the bees. I get all the information I can from Carroll, the bee-master here; but he is not a second Abbott. What he says is so unreliable; so much that he tells me I cannot credit as possible. For instance, 'As strong a swarm as ever he had came in April,' which is the middle of the wet season. This year and last there was certainly no honey at all coming in then. The peach-trees here are like the cherry-trees at home, every garden has them; a seed sown this season will bear fruit next. If left to themselves, the fruit is often worthless; but by severe pruning and culture, they are very good. The colonists like to gather them before they are ripe and eat them as apples, so little of the fruit here has any acidity. My dear husband has made a slinger, which answers admirably; it is everything I could wish for my small requirements.—J. Weedon, *Merton Road, South Brisbane, June 9th*, 1879.

AN ORIENTAL STORY.

In his *Journey to the Source of the Oxus*, Captain Wood, in describing a simple race called the Kazaks, gives the following anecdote:—

'Another story is that of a chief, who, with his people, wishing to become children of circumcision, sent a messenger to Kohan to purchase prayers for the horde. Unfortunately for the interests of Mohamedanism, the person to whom this grave commission was intrusted fell into the hands of a droll, merry fellow; one who well knew the people with whom he had to do. A jar carefully covered, containing a swarm of bees, was delivered to the dull Kazak, with instructions to his chief not to open it till all the headmen of the horde were assembled. He was further told to select the largest tent for this purpose, to close it up from the gaze of the vulgar, and when all present were undressed to place the jar upon a fire and remove its covering. The chief conformed most exactly to the directions, and all the party accordingly suffered as the wag intended. The chief himself, literally stung to madness, swore that never again should a Mussulman's prayer issue from a Kazak Kirgah.'

YANKEE HONEY.

The ingenious descendants of the manufacturers of wooden nutmegs are forcing, by all the means they can command, the sale of their honey(*!*) in this land of ours, and as an advertisement they have published a woodcut showing the back of a bald head, beneath which are the words 'Utilised at last! Wanted twenty bald-headed men willing to have their heads painted, and march through the streets as perambulating signs.' On the bald part of the head the words (painted) are (in dreadful zigzag), 'Thurber's New Styles of Honey!' and on the collar, 'Ask your wife to buy it' (*sic*).

'But,' said a trustful lady friend, 'why could not the forehead be made the advertising medium, and the poor men be allowed to wear their hats?'

'Why,' said one who had had experience, 'they who vaunt the rubbish are afraid to look one in the face, or let it be known until after they have passed that they have aught to do with it.'

'But,' said speaker No. 1, 'how do they manage as regards followers?'

'That is easy,' says No. 2; '*they let them follow.*' The secret being, that those 'utilised' are chosen for their celerity in avoiding followers.—Experientia docet, *Lower Norwood.*

TO DESTROY WASP-NESTS.

Dissolve two ounces of cyanide of potassium in two and a half gills of water, soak a small piece of woollen rag in the solution, then place it in the entrance to the nest; in about an hour you can take the nest out and destroy it. You may take hornets' nests as easy with it as wasps': after you have had the rag in a few minutes you may remove the nest and take it to any place in your hand.—J. Hind.

[The above is a highly poisonous mixture, its effluvium being deadly.—Ed.]

MAKESHIFT-HIVES.

The top for the Makeshift which you sent is not high enough to allow of feeding when the top or cover is on. Will you allow me to suggest that it would be a vast improvement to make it high enough to place a feeder under it? I know you are ready to take suggestions.—T. W. H.

[The addition suggested is so easy for any one to make, that it was thought better not to increase the cost of the hive, the expense of carriage, and the extra liability to breakage in transit by making it an essential part of the hive. All that is necessary are four narrow pieces of board of the length of the hive walls nailed together, to interpose between the hive and the roof, and an amateur can easily procure them and complete the work. Our object in supplying such hives is to put into the hands of the inexpert a ready means by which they may *complete* a hive, having correct internal dimensions. Many would-be hive-makers are unaware of the importance of correctness in the latter particular; as an instance we noticed at the late show at Long Sutton a hive in the Cottagers' Class containing nine frames, occupying the whole of the hive, which was 15½ inches wide. In that hive there was half an inch more of width than should be occupied by ten frames; and the bees put into it—if such should be the fate of a swarm—would be certain to disregard the guides, and build irregularly, giving good cause to a confiding purchaser to cry out against bar-frame hives generally, and cheap hives in particular. A simple box and frames alone do not constitute a hive: they must each be of correct relative dimensions, or they will be quickly voted a nuisance.—Ed.]

AN AMATEUR'S EXPERIENCE.

I have been a possessor of bees for several years; but formerly knew so little about them, that I almost entirely neglected them. However, a change took place two years ago, when you paid a visit to Carlisle, and gave an exhibition of bee-manipulation. I had the pleasure of being present at that exhibition, and received considerable enlightenment as to the proper management of bees. The result since then has been, that instead of neglecting them, I have perhaps paid them too much attention; at least, I

fancy they would regard it as such! I have, of course, altogether discarded the old straw skeps in favour of wooden frame hives; and I have found the latter very serviceable. During the summer before last, I reaped a very fair honey harvest; and although this year the returns have been almost *nil*, yet, with the experience which I have gained, and with better weather, one hopes for far greater success in the future.

My bees passed through both winters splendidly. There was hardly a sign of damp about their quilts or hives in the spring; but I adopted the plan of covering each hive over with a large piece of felt, stuffing straw in between the felt and the hives. This forms a double protection, and unites, I think, the advantages of straw and wood. Each hive stands upon a box a little broader than the hive, and on each side of the box are perpendicularly projecting slips of wood, which hold in the ends of the felt covers, and thus the straw is kept tightly in its place. To examine the hive, it is only necessary to lift up the felt-cover on *one* side, throwing it back upon some temporary support, to keep it from falling quite to the ground; and you thus only disturb the straw on one side, and when you turn the felt back again, it readily slips into its proper place. Similarly, I put a piece of felt, with straw, at each end of the hives. I have found bee-management, under the improved system, to be an extremely fascinating pursuit, opening up new wonders in the animal creation, and enlarging one's ideas of the wisdom of Him who has imparted such extraordinary intelligence to such tiny creatures. One incident, last year, especially surprised me. I took one evening an artificial swarm, and intended leaving the old, queenless hive to rear a queen for itself; but on the next day, being kindly supplied by a friend with a fertile queen, I resolved to place her in it. On uncovering the hive, there were plainly to be seen some queen-cells in course of formation; in fact, two of them were about half completed, showing that the bees were fully aware of their loss, and had already taken the proper course to supply it. I placed the new queen amongst them, shut up in a little box, well perforated with holes, and left her there for twenty-four hours. But at the end of that time, on uncovering the hive again to set her at liberty, what was my astonishment to discover that all traces of the newly-formed queen-cells had vanished—they were completely destroyed! The bees, it seems, finding that they had amongst them a new and mature queen, knew that it was unnecessary to raise another one, and so altered their first determination, and relinquished their attempts to raise one. Surely this showed wonderful intelligence.—An Amateur, *Cumberland*.

A Bee-Farm in Prospect.—We beg to call attention to an advertisement in this *Journal*, by which the advertiser seeks to obtain a cottage homestead and an acre or two of land, in a good bee-keeping neighbourhood, where he could venture to start a bee-farm. He will be thankful for information per post-card or otherwise of eligible places, and trusts brethren of the craft will assist him in his search.—Ed.

Solution to the Puzzle on Page 130.—The hives were placed thus:— And the lines ran:—

a	·	*b*	·	*c*	*a b c*	*a e i*	*a d h*	
					b d g	*b c h*	*b f i*	
		d	·	*e* · *f*	*c e g*	*c f h*	*d e f*	
g	·	*h*	·	*i*	and	*g h i*		

Answered by Dr. Pine, Arnie Clive, H. Beakbane.

Puzzle No. 2.—How can a bee-keeper have nine rows of hives, five in each row, and yet not be possessed of twenty hives?—Dr. Pine.

Echoes from the Hives.

Argyllshire, October 2.—'We have had wretched weather here during the spring and summer; and during the last two months we have not had two consecutive dry days. I was in hopes the bees would have got out to the heather during last month in this locality; but the scanty bloom on the heath is now gone, and nothing is left but the prospect of a long, dreary winter. Those who have a large number of hives will find them a heavy expense to keep alive.'—D. S.

Birmingham.—Pollen—Worker Eggs in Drone-cells.—'I am strong in bees, &c. through feeding for weeks past, and all my queens are safe; but I can induce no breeding. I should like to know if others experience this. I can only account for the same by the large quantities of bees hatched out during the past season. A question I should like answered in your next: supposing now you replaced ten combs of worker-cells with those of of drone-combs, what would the eggs hatch out? or rather, what would worker-eggs, laid in drone-cells, turn out? Perhaps I am ignorant, but still I should like an answer.'—J. B.

[The general experience, as we find from numerous communications, is that breeding has ceased, doubtless through lack of pollen, without which it cannot go on, except in a very slight degree. The difficulty, however, has been to get bees to take artificial pollen in autumn: they ought best to know their own needs, but probably the idea of breeding has not suggested itself to them. It is now almost too late to try to set them increasing, or the experiment might be tried of stimulating them with syrup and pea-flour simultaneously, as if spring had arrived. Perhaps their long cessation from breeding may make them anxious to begin. It will, under any circumstances, be highly necessary to give plenty of artificial pollen when breeding-time comes, for certainly they will have none in their hives; and it is equally certain that brood cannot be produced in quantity without it. If drone-comb were substituted for worker, and the queen could be induced to deposit eggs in the cells, the bees would probably eat them rather than take any trouble to produce undesirable drones—for such they would most certainly be if permitted to come to life. Queens do not lay worker (*i.e.* fertilised) eggs in drone-cells.—Ed.]

Queries and Replies.

Query No. 327.—*Float feeders.—Transferring.*—1. Two days ago (Oct. 1) I put a zinc feeder with wooden float on a common skep by cutting a hole through the top corresponding with that of the feeder. To-day the supply of syrup has all disappeared, and the feeder is quite full of bees. I suppose the queen found her way up—they make a loud humming noise. Is there any harm in leaving them to their own devices? I cannot feed them any further, as the weight of the bees keeps the float down. 2. Is transferring practicable at this present time or a little later from a skep to a bar-frame hive? 3. Is not syrup made from brown sugar as good for bees at this time of the year as that made of loaf sugar; and why not? 4. Is paint (any kind) on the outside of wooden hives injurious to bees, and is the colour of any consequence?—S. J.

Reply to Query No. 327.—1. Slide a piece of tin or glass under the feeder and remove it. Take food and bees to a fire and warm them up, then go back to near the hive and release them, letting them fly home. Float feeders are, to our minds, detestable; they tempt the bees from their cluster into a colder place in which often they get chilled and cannot return; and if used indiscriminately are very apt to convey the virus of foul

brood from hive to hive. It is scarcely likely that the queen is in such a receptable. There is probably a little food left under the float, and the bees are struggling and wrestling amongst themselves for possession of it, and wearing themselves out in so doing. 2. Transferring should have been all over by the end of September; but where it is necessary to unite several stocks to form one, it may be done to advantage; but take care to fill the frames with comb, leaving as little work for the bees as possible. 3. Syrup from brown sugar is not so good for bees nor so cheap as that made from white loaf. It contains the elements of fermentation, and will not make nearly so much syrup. 4. Paint is not injurious outside a hive if the quilt arrangement be perfect.—Ed.

Query No. 328.—*Queen flying.*—Is it usual for queens to leave their hives at this time of the year (first week in October) and fly for four or five minutes? if so, what do you consider the reason of the flight?—T. W. Atkinson.

Reply to Query No. 328.—It is very unusual, and the inference is that the mother queen of the hive died, and that the truant is a young one raised since the parent's death. If such is the case her flight would be perfectly natural, its object being marriage.—Ed.

Query No. 329.—1. I have a stock of pure Ligurians, but I find that they are all rather smaller than my black bees. Is this usually the case? If not, what would you suggest to be the cause in this instance? 2. In feeding bees what objection would there be in placing a little stage outside the hive, immediately opposite the ends of the centre frames?—J. C. T., *Dyffryn, Neath, 23rd Oct.*

Reply to Query No. 329.—1. We take it there are as many grades in size as there are in colour and disposition of bees, both Ligurian and black bees, and that very little can be said in explanation except that it is 'natural' where no attempts are made to cultivate and improve the race in any special direction. One breeder is satisfied with gentleness; another insists on beauty; a third demands great size; a fourth wants good, vigorous, prolific bees, and size, colour, and gentleness may happen as they will; while a fifth requires all the qualities combined. Colour is, we fear, too often made the test of purity of Ligurian breed, and good colour surely ought to exist in all worker-bees purporting to be Ligurians; but we think, at any rate, they ought not to be smaller than their black sisters. 2. There would be no objection to making a stage outside a hive in connexion and on a level with the top-bar of the frame inside if it did not add to the expense, and if it were not calculated to tempt the bees too far from their cluster on cold days or nights. Bees do not cluster at the ends of frames, it is too draughty and cold, and in many hives—highly vaunted, too—there are metal runners or racks, and cold open spaces beyond them that the bees would have to traverse ere they could get to the feeding-bottle. We fail to see any advantage in placing the means of feeding immediately outside the super-cover, when it can be so easily placed, at the same level, too, just inside, on the *top* of the frames, and directly over the clustering bees.—Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

T. B., *Granby.*—Combs may be used continuously by bees for four or five years or more, without material injury; but in these days of foundation, combs are so easily and cheaply produced, that we would not let them exist for longer than the first-named period.

R. S., *Dublin.*—The auction sale advertised will probably not come off until some time after Christmas, when bee-keepers will be thinking of, and hoping once again, that next year will be better than its predecessor. A catalogue shall be published in the *British Bee Journal* beforehand, and your wishes shall be complied with.

J. G., *Stamford.*—*Ventilation of Skeps.*—Your skeps, having five 1¼ inch holes in their wooden crown-boards, require something to prevent draught through them rather than increased ventilation. A piece of woven wire over each hole, and the crown-board covered with a wad of hay, will answer admirably, and be inexpensive. Take care that the roof or cover shall stand clear above the hay, or the vapours may condense in the latter, and turn it mouldy and rotten.

Zinc on Hives *v.* Hair-Cloth. (*Absagar.*)—Perforated zinc between quilt and frames is objectionable, because it may cause condensation of vapours instead of permitting their escape. It is also undesirable because its oxide is poisonous. Hair-cloth could be used instead if the object is to be enabled to change the quilt readily in case of dampness, though, if our directions as to quilt arrangement are adhered to, the idea of dampness may be safely considered mythical.

J. F. A., *Warnham, near Horsham. New (?) Dummy and Fumigator.*—Neither of these is new, but we are obliged by your sending them, as evidently you supposed them to be so. A frame of wood with fish-basket on one side, carpet on the other, and warm stuffing between, hardly needs a wood-cut to explain it. The fumigator (of the pepper-box type) is in the same category, there being little between it and that in common use, except that the one under notice is of wire instead of perforated tin.

Cheltenham and Rothesay.—*Humble Bees.*—We have no means of supplying queens of the 'Humble Bees.' They are not domesticated, and their nests are not easy to find. If you make your want known in your own locality, 'the boys' may discover a nest, and a 'careful hand' get it out intact; but we cannot guarantee that he will be able to point out the queen. 2. Shuckard's 'British Bees' professes authority; but if his information on the 'humbles' is as faulty as his description of the domestic bee, it is not worth reading.

Queen-encasement.—There is little doubt but that doubling hives without the usual precaution having been taken of caging the more valued queen often leads to queen-encasement, but it seldom happens that both queens are destroyed. The frenzy you describe gradually wears off; and whether the encasement is friendly, as you suggest, for the protection of the 'hope of the hive,' or whether each party imprisons the queen of the other, we are not able now to state, though it would be easy to determine if a black and a Ligurian stock were joined.

Crown-Board and Quilt. (*Borobridge.*)—Remove the crown-board by all means, and substitute the quilt. Blow a little smoke into entrance, remove the screws from crown, and prise up the board a very little, indeed only sufficient to enable you to discharge some smoke into the upper part of the hive, to drive the bees down. Now seize the crown-board by its opposite corners (diagonally) and twist it, to break all connexion with the frames, &c., and lift it off. If an attempt be made to lift it clean away without the 'twist,' the frames will most probably be raised with it, and a general disorganization may take place, which would be mischievous. We would then, smoker in hand, to keep the bees at bay, clear the *débris* from tops of the frames, and put on the quilt: first a thickness of hair-cloth (preferable) or ticking, then, one by one, house-flannel in squares to fit, the object in so doing being to prevent crushing of bees should any be on the bars. For feeding purposes, a hole is cut through flannel and ticking, and a stage placed over it. If hair-cloth be used, the bottle may stand directly upon it. The quilts should be close down upon the frame to stop circulation over them. You will find, on removing the floor-board, that the bees have filled the space so kindly left for their 'convenience,' with comb, proving that they did not want such space, and would not have it if they can prevent it.

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THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

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Editorial, Notices, &c.

DECEMBER.

During this and the month of January, as bee-books tell us, bees should be disturbed as little as possible, and except that entrances should be kept clear there ought to be no occasion for interference with them. The past month of November gave ample opportunities for doing all that was necessary, even by the procrastinators, who *will* put off their duties from day to day; and such as have not taken the precautions indicated from time to time in our pages, may blame themselves more than the season if their apiaries have caused them positive loss. We are fully aware that few can claim that their bees have been a source of much profit in this most disastrous year, but it has been possible to hold one's own; and though there be many who have lost some of their stocks, and not a few who will have only bee-less hives ere the spring, there will yet be a goodly number who, having recognised the value of bees, and the necessity for care in their culture, will come triumphantly out of the ordeal imposed on all alike, and will find their stocks greatly increased in worth, through the general scarcity at the end of the now rampant winter. In the hope, then, that the bees are comfortable in their winter quarters, and that the weather will not be worse than was experienced last year, we propose to pass at once to the consideration of matters that will be helpful in a general sense, premising that careful attention will be given to the hive entrance, contracting it during excessive cold, shading it when glaring snow and sunlight would tempt bees forth untimely, and preventing their being suffocated by accumulation, that may prevent the necessary ventilation, and its freedom for egress and ingress at all times. The usual precautions should of course be taken to prevent loss by birds, and the covers of hives should be kept in their places to protect them from outside moisture, and in firm faith that all will be well, we will wait the advent of the crocuses, the welcome harbingers of Spring, and the best indicators of the time for renewing active operations.

Almost all bee-books, with any pretensions to completeness, contain quotations from that ancient writer Columella, who lived at the commencement of the Christian era, and he has been frequently quoted in various journals, with regard to Apiculture, Horticulture, and Agriculture, three branches of science which he comprised under the term Husbandry, of which 'art' his treatise is written, but hitherto the complete text of his work has not appeared since its translation, published A.D. 1745, and in the hope that it may be interesting we propose to republish his book 'of Bees,' in chapters; which will gradually appear, and, we think, add to the pleasure of our readers, and the intrinsic worth of our *Journal*.

Culling as is our duty from every available source, we have this month extracted largely from the *American Bee Journal*, the 'cream' of the honey to be found therein; and we have every confidence that our readers will thoroughly enjoy the meaty dish which Professor Cook, the celebrated author of 'Cook's Manual of the Apiary,' has so laboriously and patiently prepared, and so daintily served up in that distinguished official organ of apiculture. Mr. President Newman's official Report on his visit to Europe will also be welcomed, though its tone is somewhat disappointing; we looked for new views and well-digested opinions on the many forms of bee-keeping which must have come under the observation of the President; but he evidently had no eyes for such matters, and has treated his committee to a report in which American glory is more than usually conspicuous, and the supposed objects of his visit practically ignored.

CONTROLLING FERTILIZATION.

At length there is a prospect of this problem being solved in a very simple way, and without any patented appliances. After many experiments, conducted with great patience and perseverance, Professor Hasbrouck, of New Jersey, U. S., has hit upon the idea that a tub, having a window in its top end, would conduce to the upward flight of marriageable queens, and present the best chance of securing fertilization in confinement. He says (Vide *American Bee Journal*), 'I took an empty sugar-barrel, clean and tight, and into the cover cut a hole about four inches across in the centre, and fastened a piece of glass against it on the under side. I now waited until I had the queen in the trap, which happened about two o'clock. I put three drones with her into the barrel, standing in the bright sunlight: they all immediately flew to the glass, and before I had got ready to look at them fairly, the queen had mated with one of the drones.'

Two other similar experiments succeeded equally well. Mr. Hasbrouck says, 'I can hardly expect that every queen will mate as soon as these did; but the arrangement, simple as it is, accomplishes everything that seems to be necessary, viz. it induces bees to fly without the loss of any time in close proximity to each other, and turning about so that they are compelled to notice each other.'

He thinks the young queen and drones should not be touched with the fingers, or squeezed with anything that would daub them in the least, and believes that the loss the method will prevent will fully compensate for the trouble involved.

PREVENTING PROPOLISING.

In the report of the Conversazione in our last, allusion was made to some remarks made by Mr. C. J. Stevens, of Wimbledon, on the above subject. Mr. Stevens uses india-rubber tubing to stop the spaces between the frame ends, and the sides of hives. We were under the impression that the introduction of the india-rubber was the principle in the invention, but that gentleman disclaims the idea, and urges that it is a means only by which a principle is best carried out. The best ideas are often stumbled upon, and we should not be greatly surprised if it be found that the india-rubber is so objectionable to bees that they decline to meddle with it. Mr. Stevens thinks the bees leave it alone because it perfectly closes the spaces; but there must be other reasons, for as a rule they will propolise the finest joint or angle, though perfectly air and water tight, and presenting no means of passage to an insect. The idea has more in it than appears at a first glance.

FRAMES ACROSS THE HIVES.

Since we last year threw off the yoke with which early tuition had bound us, and avowed a belief that a great deal might be said in favour of placing frames across the hive, as opposed to the general opinion that bees naturally built their combs in the other direction, we have kept the idea in mind, and have made careful observation of the direction in which combs have been built by bees in skeps and box-hives, and are thoroughly convinced that it is more the result of accident than design.

The bees are, as a rule, governed by the position in which they find the hive, subject to conditions which their owner may thrust upon them, and hence we have found their combs built in *all* directions—straight or crooked, as the exigencies of the case demanded. In a well-arranged frame-hive, fitted as all such essentially are, with comb-foundation as a guide, the bees accept it, and build their combs in the direction in which it is placed; but if it be badly arranged, and the bees find it impossible to build 'plumb,' so that their combs may be perpendicular when completed, they depart more or less from the guides, and disappoint their owner by building crookedly. Ages ago the necessity for keeping hives dry was fully recognised, and directions were given for sloping the stand or floor-board so that the entrance should be at the lowest point; and the general fulfilment of those directions has caused the belief that bees naturally build their combs in the direction of the entrance, from front to rear, or *vice versâ*; but in sheds and buildings where the slope has not been a necessity to dryness, and in other cases where it has not been given, the bees have built in various directions, but more often across the hive than otherwise; and wherever the hive has had an inclination to the right or left, the combs have been built diagonally to the entrance, varying, as did the slope of the hive, but as a rule always in the direction from the highest point of the hive to the lowest.

This rule has not, however, been followed with hives having large crown holes for feeding or supering, which have been covered with board or carpet, instead of being filled with a bung; for although the bees may have begun in accordance with the principle indicated, the holes come in their way, and they cannot bridge them until combs have been built which they can use as abutments; and consequently their first combs skirt the holes, causing divergence from a straight line, and they are afterwards occupied with crooked short lengths, the whole presenting a hieroglyphic appearance, reminding one of Arabic or Chinese writing.

Sticks thrust through hives across each other are frequently causes of crooked or twisted combs, but they do not prevent the bees commencing correctly; and a sudden inflow of honey soon after the combs have been commenced, may cause elongation of certain cells, and consequent irregularity in the construction of others; but these influences do not affect the fact that bees as a rule make straight combs, and build from the highest to the lowest parts of their hives.

But which direction is the best? Many will say let Nature answer; but whose interpretation of the language of Nature shall we accept? It may be taken for granted, for it is a fact, that in forests and buildings where bees find homes for themselves, they adapt their combs to their respective shape, and build them straight, if they can, but in lines that direct to any point of the compass that exigency may necessitates, and without apparent regard to the position of the entrance-hole, whether it be at top or bottom, or anywhere between; so that in looking to Nature for guidance one gets puzzled by the many aspects she presents.

An observer in summer, when swarms are building their new combs, would discover the wonderful sagacity of bees that were building in lines direct from the entrance, in providing so ready a means of ventilating them; but another seeing a swarm building directly across the entrance-way might be charmed with their sagacious forethought in providing against the ingress of winter draughts, and instinct would be eulogised as the teacher. Each would have ample grounds for believing he had discovered the 'reason' for the respective modes of building; and both would be right from their own standpoint. But the all-important question is, which is the best way for the combs to run, taking all points into consideration? This invites argument on the time of year when the position of the combs, in the sense implied, will have the greatest influence for good or evil on the inmates of the hive, having regard to profit, with the minimum of labour on the part of the bee-keeper, and we invite discussion on the subject. Is it better to arrange the frames in a hive with their ends towards the entrance, as aids to summer labour, and to prevent the necessity for fanning at the doorway, or to place them across the hive to ensure more comfortable winter quarters?

Perhaps it may occur to some of our readers, that, seeing both methods have advantages, hives should be constructed so that the position of frames may be changed with the seasons, or, as hinted in the letter of Colonel Pearson on another page, would a corner entrance answer both purposes?

MEAD.

We have been requested to give a recipe for mead, and should be glad to do so if we could understand what kind of mixture is wanted. We have tasted many samples which have been put into competition at shows, but the majority have owed their strength, and flavour such as they had, to materials totally disconnected with the produce of the bees, and might equally well have passed for ginger wine, cordial cloves, raisin wine, herb broth, poor cider, or small griping beer, so completely was the idea of honey dispelled by the mixture of herbs, spices, and fruits which had been 'added' to it. At the late show at Long Sutton a gentle protest was entered by the judges against the flavourings that had been added to the brewings, and we trust that in the future they will withhold prizes from all such, and disqualify them. Mead should, in the opinion of the judges at the show named, owe its flavour and strength to honey only; and from our own experience we can testify that mead (or whatever it may be technically termed) made with honey alone, diluted with water, fermented and bottled for a few years, is a most delicious cordial, exquisite in flavour, and of generous strength, and those who have tasted such, cease to wonder at the bees being so highly esteemed in ancient times, or that their produce was considered fit for the gods. Our single effort in its manufacture did not answer expectation at the time, but eventually, some years after bottling, it turned out 'superb,' and was awarded the silver medal at the South Kensington Show this year. We used equal quantities of honey and warm water, of heat sufficient to make the bulk milk-warm, no 'boiling to throw off the scum,' as fermentation will do that, and not drive off the aroma and flavour that distinguish honey from other sweets. At the same time we floated a piece of bread upon it, and on the bread laid a tablespoonful of brewers' yeast. To say it did not ferment would not be correct, but it did not act as we expected, so it was allowed to stand in a corner for a long time until it gave forth a vinous odour, and was bottled to see what it would come to (as it was believed to be spoiled except for vinegar), and it was stowed away and forgotten; now it is highly prized, and many who have tasted think it would be easy to get fond of it. When we get another opportunity, *i.e.*, when English honey is not so scarce as at present, we shall proceed exactly as before, except that care will be taken to keep the wort warm enough to promote more fermentation, and we have little doubt but that mead, with an excellent 'bouquet,' will be the result.

A good 'drink' may doubtless be made with

the washings of combs, adding honey until an egg will float and ferment in the same way, but boiling we believe to be mischievous, except when things are added, as hops, to malt liquor, from which it is necessary to extract the flavour and strength by that process.

METHEGLIN.

Metheglin is generally made from the waste comb, after all the available honey has been run out, and I extract an excellent recipe furnished by Mr. J. Oliver, to the *Journal of Horticulture*. I may state that I have tasted the liqueur made according to this recipe, and can vouch for its being super-excellent: 'When the comb has been drained of its honey, put it in a large vessel, then pour in sufficient lukewarm water to swim it nicely. Let it stand two days, stir occasionally, then strain it. Skim the scum from the liquor carefully, filter the sediment through a flannel bag, then boil one hour. To three gallons: Two pounds raisins, one ounce of ground ginger, and seven or eight laurel leaves; then cool. Add a little brewer's yeast, let it stand part of a day, then barrel it, leaving the barrel open for two or three days; bung it up, and let it remain untouched for six months, then bottle it.' I daresay some who try their hands at making this honey drink will be anxious to taste before the expiration of the six months, but the longer it is kept the better it will be. If an egg will float on the liquor it will be about the right strength.

Metheglin may, of course, be made from run honey; but by soaking the combs in water we utilise the honey which would otherwise be lost. A little lump sugar put in each bottle will make it as fine as brandy.—*Journal of Horticulture.*

TO MAKE BARLEY SUGAR.

This being a food likely to be much required, and frequent inquiries having been made as to the means by which it can be manufactured, we give a recipe which those who have the means may make for themselves. To six pounds of loaf sugar add one pint of water, put it in a wide saucepan, a preserving-pan is to be preferred, and set on the kitchener or hot plate, stirring until it is thoroughly dissolved. Let it boil until the scum rises, which it will soon do, stirring all the time, to prevent the syrup boiling over, or burning at the bottom of the pan, and skimming until clear. Now add half a gill of vinegar, keep on stirring, and let it boil until the water is all evaporated, and the bubbles thrown up sparkle and crackle, when it should be set aside, and trial made, whether a little drop of it dropped from the spoon will set hard on a cold tin or stone slab. If it remain sticky or soft, boil again from time to time, keeping up the stirring, until it will set hard and is brittle, when the whole may be removed from the hot plate. Prepare some clean tin dishes, or a sheet of lead, and slightly grease them with a buttered rag or paper to prevent the sugar sticking, and pour it on them to the thickness desired, leaving it undisturbed until cold and hard. Now turn over the tins, or lead, and by a smart blow on their undersides cause the barley sugar to break out in splinters, which should be put into bottles or tins, and well covered down to preserve it for use. Barley sugar thus made will keep for any length of time if protected from atmospheric influences; but it is always ready to absorb moisture, and if the air can get to it, it will become sticky and run together, so that it cannot readily be got out of the vessels in which it has been placed. A convenient mode of feeding may be adopted by pouring the syrup when it first shows signs of hardening, into small bottles, to be given, one as a dose, to the bees. It will only be necessary to uncork it, and set it over the feed-hole, when in a short time it will soften, and gradually creep down amongst the bees, in the condition of softened pitch, and the bees will take it readily; but it must not be given in very cold weather, or it may liquefy too rapidly for them to take while in a semi-dormant state, and may do harm. For spring feeding, when bees are active, nothing can be better than the latter mode, as it silently reaches the bees in their hive, and cannot create disorder. The small tins used for potted meats, bloater paste, and anchovies, measuring about two inches in height, and one and a quarter in diameter, filled, and tied over with vegetable parchment, will answer the purpose as vehicles for feeding, and being costless, may be thrown away when used. The barley sugar should be given frequently, in small quantities only, when necessary.

THE LANGSTROTH FUND.

The following subscriptions have been received:—

Rev. H. R. Peel	£1	1	0
T. W. Cowan, Esq.	1	1	0
Mr. C. N. Abbott	1	1	0
A Renfrewshire Bee-keeper ..	1	1	0
R. J. Bennett, Esq.	1	1	0
Miss Preston	1	1	0

The following have been promised:—

Dr. C. Orme	0	10	6
Walter Hewson, Esq.	1	1	0

We shall be glad to receive further donations to the above fund. The object is a worthy one, and it is the duty of all who profit by Mr. Langstroth's labours to remember him in his necessity. We hope to be enabled to send him a useful 'Christmas-box.'—Ed.

BRITISH BEE-KEEPERS' ASSOCIATION.

The usual Monthly Meeting of the Committee was held at 105 Jermyn Street on Wednesday, Nov. 12th. Present: Messrs. T. W. Cowan (in the chair), J. Hunter, J. P. Jackson, J. M. Hooker, Rev. E. Bartrum, Rev. G. Raynor, and W. O'B. Glennie, Treasurer. The principal business before the meeting was to receive the report of the Sub-Committee appointed at the previous meeting to inquire into the cost of publishing the diagrams exhibited by Mr. Cheshire at the late South Kensington Show. The minutes of the last Committee meeting having been unanimously confirmed and signed, Mr. J. M. Hooker reported that the Sub-Committee had made the necessary inquiries, and now submitted the following recommendations for the consideration of the Committee, viz.:—

1. 'That the Committee should purchase the diagrams and copyright from Mr. Cheshire at a cost not exceeding the price named in the catalogue of the South Kensington Show, and have the same reduced and published on two sheets of double-elephant sized paper, 40 by 27 inches, in four colours.'

2. 'That a circular should be issued to members and others stating that diagrams illustrative of bee-life and management will shortly be published for the use of schools and lectures, and that the Association will lend on hire the original diagrams for the use of lecturers at a fixed fee, the diagrams to be packed in a proper packing-case, and the hirer to pay all carriage and damage that may occur during transit, and during the time they are in the hirer's possession.'

The report of the Sub-Committee having been discussed at some length, it was moved by the Rev. E. Bartrum, and seconded by the Rev. G. Raynor, and carried unanimously, 'That the recommendations of the Sub-Committee be adopted, and that one thousand copies of the diagrams in four colours, as recommended by the Sub-Committee, be executed, and the same be sold to members at 5*s.* per set, and to non-members of the Association at 7*s.* 6*d.* per set.'

It was also resolved, 'That the Secretary be requested to draw up a circular, and issue to members and others stating that such diagrams will shortly be published at the above prices, and to state therein that a small Manual on Bee-keeping for the use of cottagers will be published by the Association early in the coming year, at a cost not exceeding sixpence.'

The Balance Sheet for the month ending October 31st, was read by the Treasurer as follows:—

INCOME.	£	*s.*	*d.*
Amount received Jan. 1 to Sept. 30 ..	424	7	8
,, ,, Oct. 1 to Oct. 31 ..	14	12	11
Total	£439	0	7

EXPENDITURE.	£	*s.*	*d.*
Amount expended Jan. 1 to Sept. 30 ..	364	15	8½
,, ,, Oct. 1 to Oct. 31 ..	5	2	11
Balance in hand	69	1	11½
Total	£439	0	7

ERITH AND BELVEDERE NATURAL HISTORY AND SCIENTIFIC SOCIETY.

The monthly meeting of this Society held on the 21st ulto. was devoted to the interests of apiculture; the principles and requirements of modern bee-keeping being explained by various members. An observatory hive exhibited by Mr. Blathwayt, and stocked with bees and their queen, attracted a large share of attention. Taking into account the bad season there has been, the show of run and comb honey was a good one. Upon the platform were hives of various kinds and other apiarian necessaries.

The Hon. Secretary, after mentioning the different kinds of bees and their relations to flowers, and with a passing allusion to skeps, proceeded to explain in detail the bar-frame and Stewarton hives.

Mr. T. De L. Hardy followed with a description of supers and supering, and showed how honey was obtained by means of the extractor. After a detailed account of the natural history of the honey-bee by Mr. H. K. Barker, Mr. H. Smith concluded with a brief notice of wasps and hornets. A vote of thanks to these gentlemen terminated the proceedings.

AMERICA AND EUROPE—MR. NEWMAN'S REPORT.

At the afternoon session of the October Convention of the North American Bee-keepers' Association, Mr. Newman, the President, delivered his Report, which was referred to a Committee of three of their members for consideration:—

Report.

At the last meeting of this Society your President was appointed to represent the bee-keepers of America at the Bee and Honey Shows and Conventions of the sister Societies of Europe, during the summer of this year. In accordance with this desire your President has, at his own expense, and in the interest of American bee-culture, visited three bee and honey shows in England, one in Scotland, one in Switzerland, and one in Austria. He has also visited some of the most prominent bee-masters in England, Scotland, Italy, Switzerland, Austria, Germany, and France, and has been uniformly received with great enthusiasm.

As Americans generally approve the more readily the *practical* side of all questions, you are perhaps even now quite ready to ask, 'Of what practical use is the knowledge obtained?' and 'How can it be rendered beneficial to us?' Anticipating such questions, let me briefly answer them. For years have we been anxiously looking for some new avenue for the consumption of our large production of honey. We have looked in vain to the North, the South, and the West, to furnish such a boon. The East is the only portion of earth's surface that furnishes us with any 'ray of hope.' And already we have astonished both the producers as well as the consumers of honey in England, by sending them 180 tons of honey in the comb, as well as hundreds of tons of extracted honey. We have also sent large shipments to the Continental countries of Europe, and many of the honey producers there begin to feel that we were encroaching upon their territory and trampling upon their rights. In England the *British Bee Journal* says they were like smoked bees fully 'alarmed,' and began to look around 'to save themselves and their belongings.' They really began to feel jealous of us, and to say unkind things about American honey. The 'injury,' we are happy to say, was imaginary—not real. We made a thorough investigation, and then made it our chief business to discuss the matter with them, endeavouring to demonstrate that not one in a thousand are now eating honey that should or would do so, were the prices demanded for it more reasonable. American honey has been transported to Europe and then sold at a profit for about one-half the price demanded for it in several countries in Europe. Heretofore it has been considered a 'luxury,' to be enjoyed by the rich only; but we must use every effort to *popularise* the consumption of honey. It must be taken by the masses as one of the *necessaries* in every-day life, for it is not only one of the purest and most delicious of sweets, but also one of the cheapest that Nature produces.

We laboured persistently to show the apiarists of Europe this 'more excellent way,' and though the battle was

hotly contested, we are rewarded by knowing that 'Victory perched upon our banners,' and the position we took is now fully endorsed by hundreds of the best and most enterprising of their apiarists. The *B. B. Journal* some time since said: 'We owe it to American enterprise that the honey market question has been so thoroughly investigated,' and then that *Journal* generously added: 'We think it is right to acknowledge that the American honey merchants have helped us out of what was a sore difficulty, viz., the means of disposing of our honey. They have proved that if in saleable packages, it will find its way into our grocers' shops, and thence into family cupboards for every-day use.'

Not only did the prominent British bee-keepers endorse this position, but the British Bee-keepers' Association presented us with its silver medal in token of its appreciation of our services as well as a souvenir of our visit. The Caledonian Apiarian Society also presented us with its silver medal, not only in honour of our visit to its annual Session, but also, as it said, in recognition of the services we had 'rendered to the science of bee-culture:' they also treated us with unbounded enthusiasm. The Swiss 'Société d'Apiculture' heartily approved of our position, and enthusiastically ratified it with a hearty 'three times three,' cheering lustily for American enterprise and practical apiarian methods. Hundreds of individual bee-keepers, all over Europe, also fully endorsed our position and received us with the greatest cordiality. Though it has cost us many hundreds of dollars to make the trip, we are constrained to believe that the interests of honey producers throughout the world have been greatly enhanced thereby. We feel quite confident that the effects will be manifest in years that are to come.

It is true in Europe as in America that we must have broad business-like views, unattended with prejudice, on all points pertaining to the consumption of honey, for consumption is the end and purpose of all production. Two cardinal points present themselves, and these are *economical production* and *general consumption*. It is quite essential that these should be 'talked up,' for thoughts beget words, and words produce actions with persons who are in earnest. 'A long pull, a strong pull, and a pull all together,' will produce wonders in this direction, and it is certainly worth while for bee-culturists of the whole world to see what wonders may be produced by *united action*. I have put this question to thousands in Europe, and now ask the intelligent and progressive apiarians of America—'Shall we try it?'

It appears to me that it needs no argument to prove that no good can possibly accrue to the honey interests of the world, by the bee-keepers of one locality or country talking against the honey produced in another locality or country. All honey is *not* alike, either in colour or flavour; but all is good for some purpose or other, either the table or the manufactory. Our aim should be to elevate the science, not to underrate our fellow-labourers—to excel in bee-management, not to undersell our neighbours. We should agree upon a price that should pay for production, and at the same time not retard consumption, and then all should be guided by this, and thus aid in establishing a regular market price for honey, the same as is obtained for wheat, corn, and oats.

America stands first in the world for honey production as well as for scientific management and improved implements for the apiary. In Great Britain this year all crops are a failure. On the Continent, generally, the crops are very light. To America, therefore, belongs the humane work of very largely feeding the world, not only with wheat and all kinds of field produce, but also to sweeten it with her excellent honey.

So far as circumstances have permitted, I have endeavoured everywhere to cultivate broad views concerning the production and consumption of honey, and to establish a fraternal bond of union among the bee-culturists of the world. How far I have been successful in this task I shall leave others to say and time to prove. The unbounded enthusiasm with which I have been greeted everywhere will be remembered as long as reason holds her sway. Of course I am well aware that this was intended in a large measure for the great body of apiarists in America whom I had the honour to represent; and I know you will all accept the fraternal and cordial welcome of your representative as a gratifying evidence of the friendly feeling which exists in Europe towards the hosts of progressive bee-culturists of America, and a positive proof that in the great work before us Europe will stand side by side with America, and take its part in the onward, sweeping tide of destiny.

In submitting this report your Representative trusts that it will meet with your entire approbation.—*American Bee Journal.*

ON THE AMOUNT OF HONEY NECESSARY FOR THE BEES IN WINTER.

(*From the Abbé Collin.*)

It is a point of the greatest importance to ascertain the exact amount of honey which it is necessary to leave to the bees for their winter provision. How many hives fall victims every year to the cupidity of their owners, and perhaps still more often to their ignorance! In February, the poor bees die of hunger for want of the honey of which they were robbed in the previous July. It cannot be too often repeated that by far the greater number of our bee-keepers, who fail in their attempt to form an apiary, owe their disappointment either to their desire to over-multiply swarms, or else to their hunger for a honey harvest larger than is their due.

Hives will generally lose about 4lbs. weight between the middle of July and the beginning of October. This loss of weight is not solely due to a diminution in the weight of honey in the hive; for in the interim the drones have been killed, the population will have diminished about one-third, and there will be no longer any considerable amount of young brood in the hive. A hive which weighs in October as much as it did in July, is lucky, for it proves that the bees have made up in weight of honey during the autumn what they have lost under the three heads above enumerated. If then you take your honey in July, you must bear in mind that 4lbs. weight should be allowed in addition to what you calculate as necessary for the winter's consumption.

We will now consider the amount of honey necessary for a hive's consumption between 1st October and the 1st May. This the writer has made repeated experiments to ascertain, the details of which are given below, and which were carried out with great care and exactitude. These experiments go to show that the winter consumption of a hive amounts to from 7 to 8 kilos of honey (or from 16 to 18lbs. English), differing slightly according to the severity or otherwise of the season, as well as to the amount of bees in each hive. Generally speaking, strong colonies require slightly more honey than the weaker ones, though this extra consumption takes place in the months of March and April, after the breeding commences. But it often happens that weaker colonies consume more than much stronger ones, as the former eat to keep up the necessary heat, which the latter possess in themselves. Thus a weak colony lodged in a small hive will consume less than if it were in a large one, and we ought to proportion the size of our hives to the number of bees they contain. To conclude, then, if you count from July you should leave each hive 10 kilos (22 lbs. of honey), or if you are generous you may leave it 12 kilos (or 26 lbs.). If you weigh and close your hives in October, you may count 4 lbs. less.

The following table gives the weight of eleven hives belonging to the writer, which were weighed by him on the 1st July and again on the 19th October in the year

1858. The weights are in French kilos, each kilo equaling 2·205, nearly 2¼ lbs. English:—

No.	July 1st. Kilos.	Oct. 19th. Kilos.	Difference. Kilos.
1	16·910	14·580	2·330
2	23·730	22·000	1·730
3	18·490	14·200	4·290
4	22·540	18·860	3·680
5	21·810	17·170	4·640
6	17·240	13·570	3·670
7	21·170	18·100	3·070
8	18·670	16·070	2·600
9	17·880	14·680	3·200
10	16·750	13·630	3·120
11	15·720	12·970	2·750

In this case the autumn was exceptionally unfavourable for the bees, and no doubt the loss of weight, which amounted to an average of 3·189 kilos (or 6·842 lbs. English) was exceptionally high, as in the year following the author's hives had lost no weight whatever up to the 1st September. But the example of an unfavourable year is safer to calculate upon than a favourable one.

We will now proceed to examine the consumption of twenty-one hives in the same year, between the 19th October and 6th April following:—

No.	Oct. 19th, 1856. Kilos.	April 6th, 1859. Kilos.	Difference. Kilos.	Strength of Hive.
1	14·580	9·290	5·290	2
2	22·000	16·170	5·230	1
3	14·200	8·690	5·510	1
4	18·860	12·670	6·190	1
5	17·170	10·960	6·210	1
6	13·570	8·530	5·040	2
7	18·180	12·270	5·580	1
8	16·070	10·650	5·420	2
9	14·680	9·180	5·500	1
10	13·630	8·180	4·750	2
11	12·970	8·850	4·820	3
12	13·920	8·770	5·150	3
13	14·320	7·650	6·670	3
14	13·060	8·480	4·580	2
15	13·830	7·950	5·880	1
16	13·890	8·090	5·800	3
17	11·100	6·720	4·380	3
18	15·350	7·730	7·620	1
19	11·940	6·690	4·950	1
20	16·710	9·620	7·090	1
21	11·310	6·660	4·650	1

The fifth column shows the relative strength of each hive. This was estimated by the author under very favourable circumstances on the 25th April following, which was a remarkably fine day. Number 1 are strong colonies; number 2, moderately strong, and number 3 were weak hives, as they appeared at the end of the winter.

The total consumption of the above twenty-one hives, from the 19th October to 6th April, was 116·160 kilos (or 256½ lbs.) English, equalling a mean consumption of 5·531 kilos (or 12¼ lbs. English). To this must be added the honey consumed between the 1st and 19th of October, and that necessary for consumption from the 6th of April till the 1st of May. These together cannot be estimated at less than 2 kilos, or 4½ lbs., as the consumption of honey during the spring breeding is necessarily very heavy. In this way we arrive at a total winter consumption of 7½ kilos of honey, equal to nearly 17 lbs. in English weight, between 12th October and 1st May.

It will be remarked that Nos. 17, 19, and 21, consumed very little honey in comparison to the others. They were swarms of the previous year lodged in small straw hives, of about two-thirds the usual size. The first eleven hives were protected by a shed, the ten last numbers were placed in the open garden, and exposed to all the weather. It will be observed that the mean consumption of the latter was not superior to that of the first, only because the three swarms are included; if these be deducted the hives under shelter consumed slightly less honey than those exposed to the weather, as will always be found to be the case. Bees lodged in hives in an apiary, which do not get the sun in an afternoon, rarely come out of their hives in winter, as do those who are exposed to all weather; they consequently consume more honey than those which are more favourably situated. It may be added that the winter of 1858–59 was mild, and that the bees began to collect pollen freely on the 17th March, 1859.

In the succeeding year of 1859–60, the following table shows the result of nine hives between the 24th October and 11th April:—

No.	Oct. 24th, 1859. Kilos.	April 11th, 1860. Kilos.	Difference. Kilos.
1	25·480	19·480	6·000
2	23·360	17·070	6·290
3	21·830	16·230	5·600
4	18·980	13·080	5·900
5	25·590	18·370	7·220
6	15·160	10·080	5·080
7	14·660	10·290	4·370
8	19·200	13·320	5·880
9	21·290	15·250	6·040

The first five hives, which were very strong in number, had nothing in the way of food except their own gathered honey. The remaining four hives were two late swarms of 1859, and their stock hives. Their food consisted of one-third honey and two-thirds glucose. The two swarms (Nos. 6 and 7) were of about the same strength of population as the two stocks (Nos. 8 and 9); but the swarms were lodged in hives only about two-thirds of the size of those which held the parent stocks. As in the former case, it will be observed that the swarms lodged in small hives show a much smaller winter consumption of honey than the old stocks lodged in larger hives. As compared with the winter of 1858–59, that of 1859–60 was a very severe one, from first to last, with the exception of the month of January, which was mild.

It will be seen that the nine hives consumed between the 24th October and the 11th April 52·380 kilos of honey, or a mean of 5·820 kilos per hive, equal to a total of 115 lbs. English, or nearly 13 English pounds per hive. If to this be added, as before, for the consumption from 1st to 24th October, and from 12th to 30th April, two kilos, the mean winter consumption of the above nine hives will be found to be 7·820 kilos, or about 17½ English pounds each. It will be thus seen that the nine hives of 1859–60 had a slight average excess of consumption over those of the previous year. This was probably due to the increased severity of the winter. It should be mentioned that in the last experiment the hives were weighed with their floor-boards, in the former experiments without them.

In estimating the amount of honey in a hive there are many things which must be taken into account. The weight of the hive should, of course, be known exactly; but the age of the comb will have a considerable influence on the weight, as will also the season of the year. At the end of July, when the drones have for the most part disappeared, after deducting the weight of the hive, you may allow for the comb, if moderately old, 3 lbs.; for the bees, 4 lbs., and 2 lbs. for the young brood and pollen, or a total of nine pounds in a hive of average size. If the comb is that of a swarm of the same season, the wax will not weigh more than half. If the hive is weighed in October the weight allowed for the bees must be reduced, and nothing allowed for pollen. Generally speaking, 4 lbs. will cover the weight of the bees and brood in an ordinary hive in the autumn. The author once etherised the bees in a very strong hive in September, and then weighed them very carefully. Their weight was 1·660 kilos, or, as nearly as possible, three and a half English pounds. By the above means it is possible to

arrive very closely at the weight of the honey in a hive, which is the balance after deducting weight of the hive, the bees and young brood, and the wax, due allowance being made, as shown above, for the two last items.*

BEE-CULTURE AMONG THE ANTIENTS.

COLUMELLA.

Of this celebrated author, his translator (1745) says, 'It is very remarkable that in no part of his work he has given us the least intimation under whose administration public affairs then were, nor under whose consulship he lived when he wrote any part of it;' but in the first chapter of the work he writes of Cornelius Celsus and Julius Atticus, as authors of his own time, and in a foot-note it is stated that the former 'flourished in the time of the Emperor Tiberius,' in the eighteenth year of whose reign our Saviour Christ was crucified. We may, therefore, conclude that Columella lived and wrote his work about the commencement of the Christian era, a date quite near enough for our purpose, and fully entitling him to respect as an 'antient' character.

We offer no apology for presenting our readers with an occasional chapter of the bee-lore of old, for that is what we propose to do; it will be precious to many who cannot possibly acquire the book, will doubtless be of general interest, and may teach humility to not a few inventors of modern times. Bees are treated of in his ninth book of his work of Husbandry,† the first chapter of which is devoted to the work 'of making parks, and shutting up wild cattle in them,' but the remainder, involving fifteen chapters, is devoted to bees alone.—Ed. *B. B. J.*

L. Junius Moderatus Columella of Husbandry.

The Preface.—I come now to the tutelage of wild cattle, and the education of bees; which very things, Publius Silvinus, I may also very justly call Manor-house pasturings; forasmuch as antient custom placed parks for young hares, and wild goats, and such-like wild beasts, hard by the manor-house; for the most part situated below the owner's apartments, that so the seeing of them hunted within the enclosure might both delight the eyes of him who had them in his possession; and that they might be brought forth as it were out of a storehouse, when he had occasion to make entertainments. And even in our own memory, bees had seats assigned to them, either in the walls of the manor-house cut into niches, or in porticoes, sheltered from the weather, and in orchards. Wherefore, seeing there is a reason given of the title, which we have prefixed to this discourse, let us prosecute particularly each of the things we have now proposed.

Chapter ii.—*Of Bees.*—I come now to the management of bee-hives, concerning which no precepts can be given with greater diligence, than have been already delivered by *Hyginus;* nor more gracefully and bandsomely than by *Virgil;* nor more elegantly, than by *Celsus. Hyginus* has industriously collected the sentiments of antient authors, that were dispersed in their writings, which were unknown to the world. *Virgil* has illuminated them with flowers of poetry; *Celsus* has adapted and made use of the manner of both these mentioned authors; wherefore we would not have so much as attempted to discourse of this subject, but that the consummation of the profession we have undertaken required the handling of this part of it also, lest the body of the work, which we have begun, should appear maimed and imperfect, as if some member were cut off from it. And I would rather allow to poetical license, that to our belief, those things which have been fabulously related concerning the origination of bees, which *Hyginus* has not past over. Nor, indeed, is it worthy of an husbandman to inquire whether there ever was such a woman as *Melissa,* of a most exquisite beauty, which *Jupiter* transformed into a bee; or whether (as *Euhemerus* the poet says,) bees were bred of hornets and the sun, which the *Phrygonian* nymphs educated; and that soon afterwards they became nurses to *Jupiter* in the *Dictean* cave; and by the free gift of the god, they obtained the same food for their own sustenance, wherewith they had brought up their little foster child; for though these things are not unbecoming a poet, nevertheless *Virgil* touched upon them slightly, and very briefly, only in one small verse: *In Dicte's cave they fed the king of heaven.*

But neither does that indeed belong to Husbandmen; when, and in what country, they were first produced, whether in *Thessaly* under *Aristæus;* or in the island of Cea, as *Euhemerus* writes; or in the times of *Erichthonius;* in mount *Hymettus,* as *Euthronius;* or in the times of *Saturn,* of *Crete,* as *Nicander* says; no more than whether the swarms procreate their offspring by coupling together, as we see other animals do: or choose the heir of their family from among the flowers, which our Maro affirms; and whether they vomit the liquid honey out of their mouth, or yield it from any other part of their body; for it rather belongs to the searchers into the secret and hidden things of nature, than to Husbandmen to inquire after these and suchlike things. Also these things are more agreeable to men of study and learning, who have leisure to read, than to Husbandmen, who are full of business; because they neither assist them in their work, nor contribute anything to increase their estate.*

THE TONGUE OF THE HONEY-BEE.

By Prof. A. J. Cook.

It gives me great pleasure to meet so many of the intelligent, hard-working, and successful bee-keepers of our country. I am always proud to be associated with those whose earnest thought and hard labour have added to the productions, and to the wealth and happiness, of our people.

The Apostle James says of the human tongue, 'That it is a little member, and boasteth great things.' The tongue of the honey-bee is much smaller, but never

* The above experiments were made with straw hives, and go far to prove the utility of bar-frame hives which enables the home of the bees to be contracted during the winter months, and to be enlarged in the spring when breeding again commences.—The Translator.

† L. Junius Moderatus Columella of Husbandry, in twelve books, and his Book concerning Trees. Translated into *English,* with several illustrations from Pliny, Cato, Varro, Palladius, and other antient and modern Authors.

Ecclesiastes, chap. 5, ver. 9: The Profit of the Earth is for all; The King himself is served by the Field. Ecclesiasticus, chap. 7, ver. 15: Hate not Husbandry, which the Most High hath ordained.

Virg. Georg., Lib. 1.

'Pater ipse colendi
Haud facilem esse viam voluit; primusque per artem
Movit agros, curis acuens mortalia corda.'

London: Printed for A. Millar, opposite to Catharine Street in the Strand, mdccxlv.

* There is a great deal of shrewd sense in the last paragraph of this chapter, and it would be well if future writers of bee-books would think well over it before boreing the purchasers of their works with minute scientific descriptions which have no practical value.—Ed.

boasteth, except in the good way of grand accomplishment.

The bee is, and has long been, of great importance to the commercial world, and this, together with the fascination inseparable from its study, have led many of the ablest scientists to carefully investigate its structure and habits. Yet I know not if there exists to-day an accurate description of the bee's tongue, and the method by which the insect procures its food. The literature of the subject abounds in confusion and inaccuracy. The most learned scientists—those usually the most careful and accurate, like Reaumur, Newport, and Carpenter—give voice to palpable errors. Even the last edition of the *Encyclopædia Britannica* gives further life to these erroneous views. Let us give brief attention to some of these descriptions.

Hogg says the bee's tongue is cylindrical; Kirby, Spence, and Neighbour, state that it is flat: Reaumur and Chambers, that it is between the two. Reaumur, Newport, Kirby, Spence, Carpenter, Shuckard, Bevan, and Hunter, all state that the tongue is solid, and that the honey is sopped up, or taken through a tube formed by the close approximation of the maxillæ, labium, and labial palpi. Newport speaks of a hairy sheath along the under side of the basal two-thirds of the organ. Neighbour says there is a gutter throughout the entire length of the tongue; while Swammerdam, Lamarck, Burmeister, Wildman, and Munn, claim that the organ is tubular. Newport and Carpenter assert that the bee's tongue is muscular, which is denied by Cuvier, Reaumur, and Chambers.

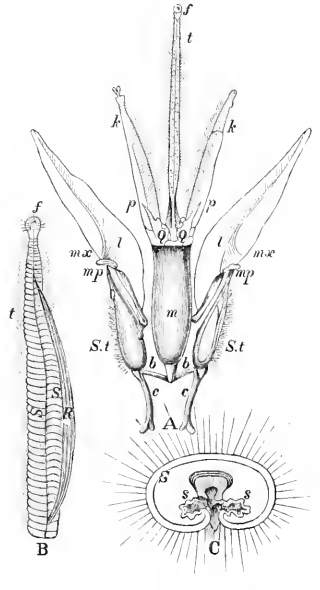
That bees lap the nectar is affirmed by Reaumur, Newport, Kirby and Spence, Savigny, Carpenter, Bevan, and Hunter; while Swammerdam, Wildman, Lamarck, Burmeister, Munn, and Neighbour, claim that the bees take liquid by suction.

Amid these conflicting views let us see if we may find the truth. To do this we must examine closely the structure of the organ, and also watch the insect as it is taking its fill of honey or some other liquid.

In the April number of the *Journal of the Cincinnati Society of Natural History* for 1878 Mr. V. T. Chambers, an able entomologist of Covington, Kentucky, published a very admirable paper upon this subject. In the *American Quarterly Microscopical Journal* for 1879, p. 287, the subject was again presented in a beautifully illustrated article by Mr. J. D. Hyatt, President of the New York Microscopical Society. I learn that Wolff has published a fully illustrated memoir on the anatomy of the honey-bee, which I regret to say I have not seen. From Messrs. Chambers' and Hyatt's papers, and my own researches and observations, I am able to present the following facts:—

The mouth-parts of the honey-bee brought into requisition when the insect takes a liquid into its pharynx are the maxillæ and the labium.

The maxillæ, or second jaws (see *m x* in fig. A) are situated each side of the labium. They are hinged to the head by the strong cardos (see *c*, *c*, in fig. A) which are chitinous rods. Extending forward from the cardo is the more flattened stipes (see *s t*, *s t*, in fig. A), which is also mainly chitinous. From the stipes projects the triangular but deeply grooved lacinia (see *l*, *l*, in fig. A). This is more membranous, but it is strengthened by a ridge of chitine, which extends to the apex. At the base the very rudimentary maxillary palpi (see *m p*, *m p*, in fig. A) are visible, while scattering hairs project from the inner margins. When the maxillæ are brought close together a tube is formed, which is continued by aid of a colourless membrane to the opening into the pharynx. This opening is beneath the labium, and between the mandibles. The colourless membrane is continuous with the epipharynx. The muscles which move the maxillæ are attached mainly to the cardo and stipes. The labium, or lower lip, of the worker honey-bee is twenty-three to twenty-seven hundredths of an inch long. It consists of a central portion and two pairs of appendages, the paraglossæ (see *p*, *p*, in fig. A), and the labial palpi (see *k*, *k*, in fig. A). The central portion is divided into a basal two-sevenths, or mentum (see *m* in fig. A), and the terminal five-sevenths, or ligula (see *t*, in fig. A and B). The mentum is about seven-hundredths of an inch long. It is hinged to the submentum (see *o*, in fig. A), which is in turn hinged to the maxillæ by two chitinous rods (see *b*, *b*, in fig. A). These rod-permit free motion, and to them are attached muscles, which in part affect the movements of the labium. The mentum is a flattened cylinder, the floor and sides of which are thick and opaque, because of the abundance of chitine contained in their structure. While lining this chitinous gutter and completing the tube is a thin colourless membrane, which is but the anterior prolongation of the pharynx. There are also abundant muscles within the mentum, which extend even for a short distance along



the sides of the base of the tongue. These not only affect the whole labium, but also protrude and retract the ligula, or tongue.

The ligula, or tongue (fig. A and B *t*) extends from the anterior extremity of the mentum. It consists of a sheath (fig. A, *l*, *s*), which appears annulated from the many rows of yellowish hairs. When not distended, the sheath, as seen in cross section (fig. C), is kidney-shaped. It has a slit (fig. C *h*) along the under surface from the base to very near the end. In some specimens the slit seems to reach quite to the end. Within the sheath is a small coloured triangular rod (fig. C R), darker than the sheath, which, except for a slit (fig. C *h*) on its under surface, would form a tube (fig. C R); in fact, the sides of the rod along the slit can be brought in such close contact as virtually to form a tube. Fine hairs project from the walls either side the slit (fig. C *h*) into the tube, which doubtless aid in making the tube more perfect. Along the back of the rod is a conspicuous layer, which Mr. Hyatt asserts is muscular. If this be so we can readily see how its action would spread the wall and open the slit. The rod projects beyond the sheath, as an imper-

fect funnel; the 'button' of Reaumur (fig. A and B, *f*). The wanting section of the funnel harmonises with the slit in the rod. Near the end the rod seems firmly attached to the sheath. Any attempt to draw the rod from this position is quite certain to rupture the sheath. The rod, when extended, projects from sixteen to eighteen hundredths of an inch beyond the mentum. At the base the rod is colourless, and its tube connects above with the membranous sack next to be described, and through this with the tube of the mentum, and with the pharynx.

Attached to the edges of the sheath, next to the slit, and possibly, as Mr. Chambers thinks, entirely lining the latter, and also to the corresponding edges of the tubular rod, is a thin membrane (fig. C, *s*). Mr. Chambers thinks this passes over the slit in the rod, making the tube of the latter complete. I have reasons to think he is mistaken, as will appear in the sequel. When not distended, this membrane lies in folds (fig. C, *s*), but when distended, it, with the rod, pushes out the sheath, so as to form with the latter a large tubular sack (fig. B S S) with the tubular rod (fig. C R) along the surface, opposite the sheath. At the base this sack has a chitinous support (fig. A, Q. Q), and connects through the tube of the mentum with the pharynx, and receives the tube of the rod. It extends nearly, if not quite, to the end of the sheath, certainly as far the slit in the latter extends, and is, anteriorly, imperforate.

The labial palpi (fig. A, *k*, *k*), like the maxillæ, are deeply grooved, and, when brought close together, form a tube which also has a membranous connexion with the mouth opening into the pharynx.

The paraglossæ are short, leaf-like organs (fig. A P P), with a hollow membranous base, which also connects with the tube of the mentum and the sack of the ligula.

When not in use the ligula, with the labial palpi and maxillæ, all double back under the head, and the tongue is so retracted that it extends no farther than the labial palpi. This shortening of the ligula seems to be effected by drawing the more membranous and less hairy base into the mentum.

How do bees take liquids into their stomachs?—This question, as we have seen, has received various answers. Some have thought that the nectar was drawn through a tube formed by the approximation of the ligula, the palpi, and the maxillæ. Others that suction was the force, and the tongue the tube. Still others have believed that the nectar was lapped up by the bees. I hope to be able to show you that all are right.

Look at the bee through a good lens (I have used Toll's one-half inch) while sipping honey containing grains of solid matter, and the fine particles will often be seen to ascend through the tube formed by bringing the maxillæ close together. We have already seen how this liquid passes to the mouth and through this into the pharynx. Or we can colour some rather thin honey or syrup by aniline (I have found deep red to be the best), and while the bee is sipping this coloured liquid, which it does as eagerly as though the poisonous aniline were not present, cut off its head, which, with a pair of dissecting scissors, is done in an instant. Examination plainly shows the red track along the channelled maxillæ and palpi, even to the mouth, which clearly reveals the path of the liquid. These conduits are much the larger approach to the pharynx; thus we see why bees take honey so fast when they can get freely at a large quantity, and why a few days of good bass-wood harvest are so fruitful.

Bees as surely take honey through the triangular rod, which is closed within the sheath. I have proved this in several ways as follow:—

I have placed honey in fine glass tubes and behind fine wire gauze, so that the bees could just reach it with the funnel at the end of the rod. So long as they could reach it with the funnel so long would it disappear. I have held the bee in my hand, by grasping the wings, while observing it with a good lens. I would gradually withdraw it from the drop of honey, which it would sip so long as the drop was within reach of the funnel. I have in such cases seen the red axis when the bee was sipping coloured syrup. Subsequent examination by dissection revealed the red liquid still in the tube of the rod, clearly showing its course in passing to the pharynx. If we place the tongue with a drop of water on a glass slide, and cover with a thin glass, and then look at it through the compound microscope with a magnifying power of eighty diameters, we can readily see the liquid pass back and go forth in the tube as we press with a pencil on the thin glass cover. As Mr. Chambers states, this tube at the base of the funnel is only one five-hundredth of an inch in diameter. We now understand why the bees are so long in loading their stomachs, when gathering from small tubular flowers, as then this minute tube is the only avenue by which the bee secures the nectar. We can also well understand why they gather so much faster from some flowers than from others. In the one case they secure the liquid sweet through both the channels above described; in the other, when the honey is scarce or deep down in small tubular flowers, they can only use this microscopic tube.

We also note the admirable construction of the tongue, which permits it to probe these tiny flowers, and also see the advantage of even a little additional length in this important and wonderful organ.

I also believe that bees lap up the honey. If we spread a thin layer of honey on a glass, and permit the bees to visit it, we shall see the bees wipe it up with their ligulæ. Fine drops disappear even though the funnel does not touch them. From this observation, as well as the structure of the organ—if I am right in believing that the slit in the rod opens on the surface—we can but conclude that the slit in the rod, no less than the funnel, may be the door whereby liquids pass to the tube. If Mr. Hyatt is right in thinking that the dorsal brand of the rod is muscular, we can readily see from its position and the form of the rod, how the slit might be opened. If the liquid is very thick the bees are seen frequently to retract the ligula and then extend it, as if to clear the organ by scraping it between the maxillæ and palpi.

While sipping honey the bee performs a kind of respiratory movement with the abdomen. This shows that the force of suction comes partly, if not wholly, from the stomach, which organ is situated in the abdominal cavity. The tongue is also retracted and extend rhythmically while the bee is sipping. The tip passes alternately back and forth from its greatest distance from the mentum to the end of the palpi. This movement may be something analogous to swallowing.

I am not certain as to the function of the membranous sack. I have found that if I killed a bee, by compressing its thorax very soon after it commenced to sip the coloured liquid, that the latter was always in the stomach, but not in the sack. If I waited longer I found the sack also partially filled. This leads me to conclude that it acts as a store-house, enabling the bee to carry a load beyond the capacity of its stomach. It also appears glandular when distended, so possibly it secretes an animal juice or ferment, which aids in changing cane-sugar into glucose or grape sugar; for we find upon analysis, that pure cane-sugar, after passing through the stomach of the bee, has partially undergone this transformation.

After the bees have sipped the coloured liquid, I find invariably that the tip of the tongue—the small portion where the slit in the sheath seems obscure, and where the rod seems more firmly attached to the sheath—is highly coloured, as though full of liquid. Possibly the sack does not extend into this portion, and the tube may be larger in this part. By a little pressure the liquid is made to pass out of this portion of the tube, either through the funnel or slit—perhaps both.

(*To be continued.*)

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded: and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

ARTIFICIAL POLLEN AND FEEDING.

It is now many years since I published in the *Journal of Horticulture* 'A New Discovery' of introducing food directly into the combs without the intervention of the bee. Spare combed frames were employed, and the cells were carefully filled with sugar syrup from a fine piped tin can, such as is used for oiling machinery. Our then chief (the late Mr. Woodbury) took exception to the principle. It is curious to observe how history repeats itself. The present 'captain on the paddle-box' of that periodical (Mr. Pettigrew) has, I understand, recently described how he had fed his horse-box, overheated skeps, removed from Manchester to Carluke, by inverting and deluging the inmates and their works with 2½ cwt. of sugar converted into syrup, tied down to their damp, soaked boards, and covered with roofing felt. What must be their condition the coming spring?

In the same *Journal* the slap-dash Captain's chief mate (Mr. F. Cheshire) describes how he placed artificial pollen directly into the combs, in certainly a less hap-hazard style, and takes credit for being first to employ pea-flour as a substitute for pollen, and administer it by feeding within the hive. Employing pea-flour as a substitute for pollen is not a thing of yesterday in Scotland. In justice to 'A Lanarkshire Bee-keeper,' as Vol. IV. testifies, he accidentally discovered, a quarter of a century ago, through a 1st-of-April joke (1854) how readily his little favourites befooled the fooler by supping up his syrup peas-brose (*Anglice*, pea-flour paste); and more than twenty years ago the Germans introduced within their hives in comb both artificial pollen and water as early as January to stimulate breeding.

It is twenty years the coming spring since I carried out a series of experiments with artificial pollen, feeding within as well as without the hive. My bees at first stoutly refused to accept the proffered boon, although I allured them to the soup-plates containing the pollen with a central heap of honey. They stood on the cut straws placed upon it, and carried off the honey, but shook off the pollen from their coats, although I rolled a few of them in it. I at last hit upon the expedient of *damping* it slightly, when they at once proceeded to knead it into pellets in their thigh-baskets, and they bore away with avidity the flour or meal of the following grains: Peas, beans, barley, rye, wheat, oats, Indian corn (yellow and white), linseed, and rice. Placing the various sorts side by side, they seemed to give a preference to the first four named; but they were not over-particular as to their farinaceous food—foreign arrowroot, potato starch, and even ground oil-cake, disappeared. It was most interesting, on getting out of a morning, to find a lot of my little favourites fluttering on poised wing at the trysting-place, awaiting their morning meal.

I feel sorry to be obliged to damp the expectations of so philosophic and genial a writer as Mr. Cheshire with results. One fine young stock carried largely in excess of all the others, and from it I looked forward to an overflowing population with no end of supers; but alas! I found I had jumped to conclusions far too hastily. This stock, instead of proving the premier of the apiary, turned out about the worst. Every time I drew a slide a sortie of mites burst upon the scene, doubtless bred in the overplus hoard. An eminent apiarian correspondent has recently written me he is inclined to think foul brood has often its origin in mildewed pollen.

With a superabundance of natural pollen from the yew and the crocus close at hand, I came to the conclusion that the artificial was unnecessary and uncalled for, remembering the opinion expressed by that sensible old writer (Gelieu), that excessive pollen-gathering was the weak point in their characters. He observes: 'Bees lay up useless hoards of it (pollen), which they go on augmenting every year, and this is the only point on which they can be accused of a want of that prudence and foresight so admirable in every other respect.'

The strongest argument in favour of artificial pollen is that it can be supplied before the natural appears, and after it disappears, and thus very early and very late breeding may be induced: but is this encroachment on the natural rest period of the year to both queen and workers in the end any real gain? I think not. One of the most prejudicial things in both animal and vegetable life is a check, the effects of which are long felt. In a very mild and early spring the fruit-blossoms expand prematurely, and, should frost set in, the crop is lost. The same frost spell must of necessity tell severely on the queen and brood of the untimely stimulated hive in spring as well as in autumn.

Of late years I have found it of the greatest advantage, so soon as the honey season terminates, towards the end of August, instead of waiting till the end of September or October, to begin to feed up gradually and continuously all that require it. By this means the queen breeds on steadily, and the feeding is properly sealed out before the cold weather sets in.

Despite the wretchedly bad season we have recently passed through, my strong, non-swarming Stewarton colonies, without a teaspoonful of sugar syrup, or an ounce of artificial pollen, are amply found, both in population and store, till next supering time. True—it is contrary to their wont—they have yielded no honey harvest, saving a few unsealed, and but one sealed, super; still, when I compare them with the continuous feeding, and the trouble attendant on my swarms and artificially built up young stocks, it is not hard to decide which is the least troublesome and most profitable system of bee-keeping.—A Renfrewshire Bee-keeper.

'THOSE SINGING MASONS
BUILDING ROOFS OF GOLD.'
—*Shakespeare.*

Will you kindly allow me to make known to you that I have discovered that 'Beeswax' is rich in gold,—to the extent of 2000*l.* in a ton weight of the same. I have had it assayed and pronounced as 'fine gold?' Perhaps it may interest bee-keepers if you will kindly publish this in your *Journal*.—JAMES BRUCE, *late 33rd Regiment, Nov.* 15, 1879.

[NOTE.—The above (without the heading) came to us in an envelope bearing the Greenwich postmark. It would interest bee-keepers very much to find their bee-wax adulterated with fine gold, and doubtless they would soon take it all out. We are, however, sadly afraid that the gold in wax is like the flavour in pebble-soup—has to be put there before it can be found.—ED.]

HIVE VENTILATION—POLLEN—NEW JOURNAL.

It is a good long time since I have written to you, but now I am more at leisure. I have translated a portion of dear old Collin's book, which contains some experiments of his on the amount of honey consumed by bees during the winter. These he conducted, I know, with great care, and may serve to interest your readers during the slacker months, and be useful and interesting as a pendant to Mr. Cowan's excellent paper on 'Wintering Bees.' This latter I have read with much interest. There is no doubt that the principles he lays down as to plenty of food, plenty of bees, winter passages, and good upward ventilation, are correct; but it is not so easy to arrange the details by which these may be arrived at, as to talk about them. I have only kept bees for four years, but I too have paid great attention to the matter, and made it a subject of careful observation each winter; and I am inclined to think that good ventilation and plenty of good food are more important than a large population. I have seen a very small population, which had good upward ventilation, and barely enough food, pass a very hard winter, and set to work vigorously in the spring in a way which astonished me, increasing and multiplying till the hive was speedily full.

I confess I do not understand your theory about currents of air passing round the ends of the frames, and the necessity of stopping up the ends. I do not see myself how air can circulate at all in a closed chamber, which in fact a hive is, unless, indeed, you have a huge door-way into which the cold wind blows direct. It seems to me that the temperature in a hive must be the same in every part of it,* even a thick cluster of bees will disseminate the heat all around. It seems to me that to have circulation of air in a hive, you must have differences of temperature, which I conceive do not

* We concede to our gallant and courteous correspondent that in an enclosed chamber there would be no circulation of air, if there were no disturbing causes, but we submit that in a hive containing living bees, the heat they generate causes the air to be continually moving, which movement we have perhaps incorrectly called 'circulation.' Earlier in his communication, 'plenty of good air and good upward ventilation' are rightly considered essential to a healthy condition of a hive of bees; and these, we conceive, support our theory, for it is manifest that foul vapours could not leave the hive, or new 'good air' enter it without certain displacement, and considerable motion of the air-globules therein. Apart from the movement of air within a hive, from internal causes, it is a matter of fact, and a valuable feature in bee-keeping, that every movement of the outside atmosphere, and every change in its density, affect the internal condition of the hive, and often save the bees much labour that would otherwise be necessary in fanning at the entrance. Changes in atmospheric pressure affect the barometer be it where it may (though such changes may not be humanly perceptible), showing that the air may become rarified or condensed without our knowledge, and the same conditions act and react in a hive and produce changes in the components of its gaseous contents. Again, 'the wind bloweth where it listeth,' but not even its lightest breath can pass a hive that is not hermetically sealed, without causing either increased density, or rarefaction of the air within it, and each of these will cause movement or circulation in a greater or less degree in accordance with the size of the entrance-hole, and the means of upward ventilation. These facts are, however, generally accepted, and in the directions so often given in bee books and journals to provide 'ventilation without draught,' their existence is acknowledged, and the evils they might produce provided against. Our theory on the loss of heat through the circulation of air (and heat) round the ends of the frames in bar-frame hives, is based upon the fact that the heat in a hive necessary to the life of its inmates must, in the ordinary winter season, be generated by themselves; and we think it will be conceded that in the centre of their cluster (or thereabouts) the temperature will be the greatest. At the same time it must be remembered that during intense frosts the breath or exhalations from the bees, caused by the combustion in their bodies of heat-producing food, will often condense against the hive walls and freeze there, in the same way that the breath of humans will condense and form the beautiful handiwork of Jack Frost on the window-panes of the living-room or bed-room. That ice will form in one part of a hive while the bees are able to maintain life-preserving heat in another part disposes of the belief that 'the temperature in a hive is the same in every part of it.' Doubtless a cluster of bees will 'disseminate (*i. e.* disperse) the (their) heat all round it,' and to supply the loss thus sustained there must be increased production of the life-sustaining element; and it is upon these facts that our theory is based. The problem, then, is to discover the best means of preventing the necessity for the wear and tear of bee-fibre and tissue in the digestion (or combustion) of inordinate quantities of food for heat-producing purposes, such consumption being a loss to the bee-keeper, and dangerous to the health of the community. Now in the fixed comb hive, whether skep or wooden box, the combs are built directly against its top or crown, and as far down its walls as the bees store them with honey. As honeycombs are seldom more than a quarter of an inch apart, though the combs each occupy at the least an inch and a half of space, it follows that in such a hive as we are supposing, there will only be a quarter of an inch of the wall, or side of the hive, between each pair of combs, with which the heated air from the cluster of bees can come into contact, all the other parts on the upper portion (the nest) of the hive being covered by the combs built against them. Whereas in a moveable comb hive, as generally constructed, the whole of the hive's sides, and three sides of the frame ends, are exposed, though within the frames the combs are built partly to the sides (or ends), and thus there are six times as much wall surface, and about an equal area of frame-end surface, all in the coldest parts of the hive, to act as condensers of the heat and moisture given forth by the bees. It has been often demonstrated that bee-combs, lined as each cell is with the finest silk, and each, even when empty, forming a dead-air vessel in which there is the least possible convection of heat, is the very best material for retaining that generated by the bees; and we hold that by preventing its escape round the frame ends it is retained around the bees in their nest, and that the desiderata sought are thus accomplished.—ED.

exist. As regards hive entrances, I had already thought in all long hives (which I entirely concur with you in believing to be the right form of hive) of placing the brood-nest for winter between two dummies, and filling up the ends with chaff, and of having tin tubes or tunnels to connect the summer entrance with the brood-nest, to admit ventilation and allow exit to the bees. I thought these might have an angle in them which would entirely prevent a direct draught, if a cold wind were blowing on the hive's entrance.* Perhaps something might strike you more easily made and convenient.

I think for winter purposes I should prefer frames which are not quite so shallow, and narrower than those you use now, either in the Standard or the Woodbury. To encourage bees to go into supers one can understand the object of broad, shallow frames. But with the Combination principle, with frames across, there is no object in this. As I conceive the proper principle is to put the honey-boxes into the centre of the hive itself, where the temperature being always the same, the bees cannot object to go, moreover, where from their hatred to a vacuum, I believe they will rush from both sides to fill it. It would probably be inconvenient to you to change now; but as far as I can observe, in winter the bees keep round the bottom of the honey in each comb, and work upwards; and therefore I should like to have the honey compactly placed above them, and not spread out more than can be helped. I quite concur as to winter passages, which I make in all my combs.

As to autumn feeding for breeding, I have heard it discussed, and it seems to me with some justice, that the queen requires absolutely a certain season of repose; and if you make her lay late she will not commence early, and will not lay in January, which is all important.† I have, certainly, myself had much success with two hives this year, which were exceedingly poor in bees last autumn, but which I encouraged to breed (against good advice too) early this spring. They were the best hives I had this year, one giving 25 lbs., the other 17 or 18 lbs. of honey. I have since transferred them both, and both have bred since, and when I shut them up for winter they were doing exceedingly well. I only speak of this with the greatest caution as a matter deserving thought and observation. What is absolutely necessary is plenty of bees for the first week in May. I think weaker colonies will get through the winter generally well enough if they have enough food and a properly constructed hive, at the same time, either from the heat generated by the bees, or from some other reason, I think you will find that in strong colonies you very seldom find much moisture inside the hive.*

As regards pollen-feeding in autumn, I occasionally put a little pea-flour on sunny days on the floor-board outside the hive door. Two or three of my hives have cleared it off regularly, but the others did not look at it. I suppose it was in colonies which lacked pollen, but were breeding. At the same time the bees were getting natural pollen pretty freely up to the end of the fine days last month. I should not like to put any fermentable paste into the hives in autumn, but I see no objection to trying Herr Gravenhorst's recipe (page 228, *Journal* for *April*, 1878) in the spring, and shall do so. I think we may thank Mr. Cheshire for his idea of putting the paste *on the combs*, and leaving it to the bees to pack it.†

I am glad to notice that you are going on with the wooden foundations. I will honestly tell you that I was a little disappointed that in first bringing to notice the foundations, you did not say where you got the idea, for it was myself who specially urged M. Dennler to bring to England the piece of Herr Frederice's foundation, which he exhibited at South Kensington. I doubt not you have greatly improved on it, for the original was very clumsy, and, indeed, hardly useable. But I think every one ought to get his fair share of credit whenever any useful idea is started.‡

* An angle in the passage or tunnel would scarcely effect the object desired, as it would not prevent the pressure exercised by the wind from forcing itself through the interior apartment or bee-nest. Our suggestion on page 139, we contend, will do so to a very great extent, and we patiently await the refutation of our theory, implied in the demurrer made against it.—Ed.

† Naturally queens will continue their autumnal ovipositing as long as there is an incoming of honey; and in many parts of the kingdom, in a fairly good season, this may continue to the end of October, or later, whereas in a bad one, as in the present year, both income and breeding may cease in August. Nevertheless, it is important that there should be young bees at the later date, or the chance of the stocks wintering will be a poor one; and there can really be no harm in supplementing nature by providing the necessary continuous supply of autumn food. Stimulation may possibly wear ont queens earlier than if they were let alone in poor seasons; but if bees can be thus obtained at the time they are necessary, the chief object may be claimed to have been effected. There can be no profit in keeping dawdling queens; better wear them out than let them grow rusty. —Ed.

* Strength of colonies is relative: what would be a strong colony in a 14-inch skep, would probably die of cold, moisture, or dysentery, in a 12-framed Langstroth hive as at present constructed.—Ed.

† Our limited experience on this point has been disappointing. We tried Mr. Cheshire's method, but could not force the paste into the cells, simply because we could not get the air out of them; nevertheless we did our best, and made a part of a comb appear to be full, and placed it in the centre of a strong colony which was pollenless. Two days after we found most of the paste sucked dry, and a few cells apparently well packed with it; but one of them had a small hole in its surface, and curiosity being provoked, careful examination proved that what seemed like cells packed with the paste were a delusion, for behind thin walls of that material the cells were empty, and it appeared that the bees had not 'packed' it at all, but simply sucked the honey out of it and left it. We shall be sorry if this is their general practice, as we hoped the idea was a grand discovery. Certainly it has not induced breeding, though syrup has been constantly given.—Ed.

‡ We are very sorry if we have seemed to ignore Herr Frederice's claim to originality, but this is the first time we have heard his name in connexion with the matter. We were certainly aware of the existence of a piece of foundation of the kind described, but understood from Mr. Dennler that it was formed by cementing sheets of ordinary comb foundation on both sides of a board which had been dipped in molten wax. Anyhow, we considered it in the light in which our censor describes it, and the judges at Kensington Show evidently thought no better of it, for they did not mention it either in their awards or their report. What induced us to try wood, which we simply coated with plain wax, was the American idea of flat-bottomed foundation, some specimens

You must use this long letter as you like, omitting such parts, and printing such parts as you see fit. But wintering bees is to me a subject of special interest, and I have been drawn on to write much more than I first intended. I see a rival journal (of which a specimen copy has been sent to me) has offered a prize for the subject. I am sure they had better reprint Mr. Cowan's paper, and humbly acknowledge where they got it from, for they will not be likely to get anything better. I distinctly refused, when consulted, to support the proposed new paper, for I feel sure you would always have considered the necessity of opening your *Journal* to rivals either in idea or in hives, had the matter been fairly brought before you;* and I feel sure if our small body of bee-keepers is to be split up into two rival sections, which with a rival journal is sure to be the case, it cannot be for the real progress of practical bee-keeping in England. I see no reason to think that there is yet room for two bee journals in England, nor do I see the necessity for another.—G. F. Pearson.

P.S. I am trying to think of a way of cutting the entrance to the hive in a reversable floor-board, and not in the hive itself, and think it might be done by putting the entrance *at one side, not in the centre*, though, of course, where the floor-board was reversed, it would come on the other side of the hive.—G. F. P.

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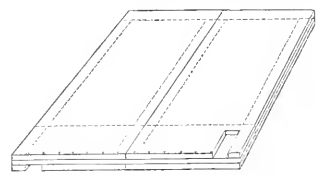
of which were exhibited at Kilburn, and after much difficulty we forced the bees to adopt it, and they built their cells upon it, though not in a satisfactory way. We explained this to Mr. Newman at the Edgbaston Show, and inquired the cost of a flat-bottomed foundation-machine; but his reply convinced us that it would be hopeless to expect one from America, so we set our wits to the production of flat-bottomed cells on a wooden base, and have fully explained to our readers from time to time the nature of our experiments, and the cause of our ill success in the shoe-nail direction, being unable to get them of the proper size. We are, however, continuing our efforts, and hope to produce a really useful and useable article. In the meantime we shall be glad to give full publicity to Herr Frederice's ideas on the subject, and his report of any success he may have achieved that will help to rescue his invention from the condemnation implied in the slight praise with which it has been acknowledged.—Ed.

* We consider it one of the features of the *British Bee Journal* that it is open to all who choose to avail themselves of its columns for the discussion of bee-keeping matters, to seek advice or help, or to criticise any and everything connected therewith, ourselves included. We endeavour to prevent the appearance of crude productions by correcting any errors that may inadvertently be committed, but we never alter the sense of communications with which we may be favoured; and we never willingly allow anything to appear that may possibly lead inexperienced readers into error, without a cautionary foot-note of our own appearing with it. Not a few avail themselves of the open character of our paper to advertise themselves or friends—a meanness not ours—and oftentimes the desire on our part to oblige all our contributors necessitates increased outlay in the publication of supplementary pages to enable their productions to appear at an early date. Of the necessity for an additional bee paper the public will judge for themselves; we have no right to offer an opinion on the subject.—Ed.

† The floor-board suggested may be readily made after the manner of those in use with many of our hives in which the entrance is at the centre. A frame is made, indicated by the dotted lines, of material about half an inch thick, three sides of it being about an inch wide only, while the front must have a little more width than there is to be length of the passage-way, for obvious reasons. A fifth strip may run down the middle, if thought necessary, for nailing purposes. The frame is then covered with thin boards, entrances being cut in them, as indicated, on opposite sides and at opposite corners, so that they will come to the same part of the hive whichever way they may be turned up.



Having the entrance at the corner has an obvious advantage for protection against direct draught, the angle splitting the wind and relieving the pressure. The alighting-board might be fixed the whole length of the hive front, or may be smaller and moveable.—Ed.

CYPRIAN QUEENS.

My attention has been called to an article in your *Journal* of a few weeks since on the subject of the stock of Cyprian bees which I have presented to the British Bee-keepers' Association for the use of the members. I had not seen the article in the *Journal of Horticulture* from which you quote till you referred to it. I did not know of its appearance, still the statement is quite true that these are the only pure Cyprians in this country. I have the less hesitation in making this assertion as it cannot prejudice others' interests, seeing that if all goes well, ere long I hope, any members of our Association, who may be so inclined, will have an opportunity of discovering experimentally whether the high praises which German bee-keepers bestow on this race of bees have any foundation in fact. My friend, Mr. Cori, the original discoverer of this variety, and the only person, I believe, under whose auspices bees have ever been imported from Cyprus, has, with me, taken a great interest in the introduction of Cyprians into this country, and has sent over this colony, the queen the finest he has ever raised from an imported mother, for this purpose. As Mr. Cori has never parted with an imported queen, and keeps a careful register of the descendants of those he receives, it is an easy matter to determine who has the right to consider himself the possessor of pure Cyprians. Whilst on this subject, I cannot refrain from mentioning that it was entirely due to the disinterested efforts of 'our' Editor that my Cyprian stock obtained the bronze medal at the last South Kensington Show, as they arrived but a few hours before the opening of the Exhibition.—J. W. Jackson, *Nov.* 17, 1879.

[If the above be true, and we have not a shadow of a doubt but that the writer believes every word to be so, we tender an humble apology to the author of the paragraph in the *Journal of Horticulture* to which reference has been made. At the same time we confess to a feeling of unbounded astonishment and disgust at the nefarious practices of breeders of (so called) 'Cyprian' queens in the past, and the credulousness of the 'Judges' who have awarded prizes to such as have been exhibited at the shows that have taken place since 1874. Messrs. Neighbour & Sons have been the chief exhibitors and

prize-takers for 'Cyprians;' and we have yet to learn if they will be content to rest under the stigma the above assertion implies. Foreign breeders and exhibitors are all (save Mr. Cori) also brought under the ban; and those who have purchased their 'Cyprian' bees and queens have simply been swindled by them if Mr. Jackson's statement is correct. If we remember rightly, at the first exhibition of Cyprians at the Crystal Palace Show, the Judges made their award subject to the opinion of Mr. F. Smith, the chief authority at the British Museum, and he was satisfied that they were of the true breed, or the prize would have been withheld; yet this judgment is also impugned—where shall we look then for truth? The slight service we were able to render to Mr. Jackson at South Kensington, where his Cyprians took second prize, Messrs. Neighbour being first, is scarcely worth mentioning, except in so far as it may show our willingness to get his bees exhibited and judged, though the absence of the Observatory hive (in which they were shown) from our 'collection' might have prevented our obtaining the premier award in that behalf. There is, however, a weak point in the statement that the queen in question was 'raised' from an *imported* mother; who can prove how she was mated?—Ed.]

BEE FLORA.

I would beg leave to correct several errors in Miss Rooke's list of bee-plants, as given in last *Journal*. She says that the common anemone is not a favourite with bees. Possibly it may not, but I know the wood anemone (*A. nemorosa*) is a prime favourite in this locality. Along with the pilewort (*Ranunculus ficaria*), it is our mainstay here for a few weeks in spring. I have seen the bees as thick on the wood anemones as ever I saw them on clover even.

As to *Erica tetralix*, it affords honey so plentifully in nice weather, that I have often gathered it myself. If you press the heather-bell between your finger and thumb a clear blob of nectar exudes, which one can sweetly take up *à la bee*. I don't think hive bees get much of this, however, as their tongues are too short to reach it; but the humble bees work busily on this heath.

She describes *Erica cinerea* as 'invaluable as a late pasture for bees, producing quantities of thick, dark honey.' I would make the same observations on this as on *E. tetralix*.

That thick, dark honey of honies—Scotch heather honey—is not gathered from this plant at all, but from the common ling (*Calluna vulgaris*), which, by the way, is not a heath proper. If the ling or heath be any way late in flowering, the frost at night effectually gathers the honey. I think it is a somewhat risky thing to be so decidedly dogmatic on the qualities of so many bee-plants.—G. A. Rollo, *Forfarshire*.

ANTIDOTE TO BEE-POISON.

In answer to your correspondent, Mr. Browne, who desires an antidote for bee-poison, let me suggest what I believe to be an infallible and certain remedy, and one not generally known among apiarians. Ipecacuanha-powder, dissolved in water to the consistency of a thick paste, and well rubbed in, has proved in my own case, and in the case of those to whom I have recommended it, a wonderful preventive to subsequent swelling and inflammation. I had heard of it being used as an antidote to snake-poison in India, and experience has proved that it is equally efficacious with regard to bee-poison. I, like your correspondent, used to suffer acutely, in spite of all the old-fashioned remedies; but the use of ipecacuanha-powder has now made me comparatively callous to bee-stings.—Rev. H. Sturges, *Wargrave, Henley-on Thames, Nov.* 14.

BEE POISON AND ITS ANTIDOTES.

If Mr. Beale Browne (*B. B. J.*, vii. 145) will put a little strong spirit of ammonia (*Liquor ammoniæ*) upon the next bee-sting he is unfortunate enough to get, he will, I think, find it effectual in relieving the pain, and, to a great extent, in preventing swelling. It should be applied as soon as possible. I have tried it on persons who suffer much when stung, and always with success. Formerly I used it myself, but have now become so hardened by constant stinging that the pain, though severe for a moment, goes off directly; and unless stung in a very tender place, such as inside the nose, I use no antidote.—H. Jenner Fust, Junior, *Hill, Falfield, Gloucestershire.—Nov.* 18, 1879.

KEEPING FOUNDATION.

In Algeria I had a stock of foundation by me, before I got my own machine, and I can testify from bitter experience that the moth will attack foundation, but with this important difference: the grub does not seem to be nourished by the manufactured article as on the natural comb, and consequently does not seem to have the requisite strength of jaw to make great havoc. The grub never attained a large size on foundation, and but rarely pierced a sheet, but only crept about the surface, leaving its disgusting trail to mark its path.

I went over my stock with a light brush from time to time, which saved it. I bought wax in the cake extensively from the dealers also, and found the same rule hold good: the grubs never seemed to mature, and always were small, whereas in a hive they would be simply disgusting in size and appearance.—Arthur Todd.

BEE ENEMIES—ROBBING BEES—BEES IN WINDOWS.

On examining one of my hives about the middle of September, I found a large cockroach helping himself on the combs, and on my giving an alarm to the bees, they, in running over the combs, discovered the intruder, and soon made 'short work' by ejecting the black thief. How important to contract entrances to hives to keep out such vermin! But robbery with insects, birds, and all undomesticated animals, seems their natural mode of living. Take for instance an untenable (non-defensible.—Ed.) hive of bees, which is a great inducement to attack by others, and once attacked the robbers are difficult to control—I had almost said intractable. The very movement of the bees at such times seems to say, 'Clear the line; plunder is the order of the day, and sting.' They will, with fury: I can find

no better method than to remove the hive attacked to some remote place, and reducing its mouth with one of the enclosed, which I find very useful for darkening and contracting the entrances to hives. Robbery with bees to the uninitiated is often construed into strength. I remember a case which came under my notice in proof: one gentleman asked me if I would kindly drive some bees from skeps, and he added, they were *very strong*, and were flying in front of the hive in great numbers the day previous; but when I gave them a puff of smoke and turned the hive up, I found it almost tenantless, and the 'should-be' bees and honey gone; the activity turned out to be robbery. Cottagers have often exclaimed to me of the wasps destroying their stocks, when the actual aggressors were bees, and the wasps joined in the fray; and late and early they carry on their burglarious work, until the whole fabric is demolished.

I found a good deal of my small take of honey of the past season candied, which the slinger would not extract. A good plan to remove such is to place the combs in a tin can, adding a small quantity of water, to form steam, and gently simmer inside another vessel (glue-pot fashion). Speaking of honey, perhaps some of those gentlemen who are thinking of contending for prize essays will kindly scientifically develope 'to the curious' how bees deliver the honey from their bodies.

The crown of a net bonnet-shape makes a good thing to catch bees in windows, by making one side flat, and placing it next the glass, the bees readily run up in the trap and are easily taken.—DAVID LING, *Rochford, Nov.* 11, 1879.

BEES IN IRELAND—DRIVING IN WINTER WEATHER.

I have lately been making an excursion through a considerable part of the north of Ireland, and on my way I endeavoured to pick up a few stray swarms of bees in order that by uniting some of them I might try to preserve them through the winter, my own having been considerably thinned in spite of all I could do to save them. I find, however, that two-thirds of the regular bee stock of the country have already died, a very few of those remaining seem to have a chance of surviving the winter. Some half-dozen of these latter, which seemed too weak to live, I endeavoured by the usual means to drive out of their own hives, with a view to carrying them home and there uniting them. To my astonishment, however, although I used all the ordinary means, not one of them could be induced to quit their respective hives. I first smoked them, applying in some cases more, in some less. I then inverted the hive and placed another, exactly fitting, over the top, and tapped on all sides for a considerable time. This seemed the more strange to me, seeing that I have performed the same operation often before in a precisely similar manner. If you can explain this seeming anomaly to me, you will very much oblige.—S. W. P., *Ballymena.*

[The cause of failure in the attempts to drive the bees were as follow: cold, absence of a sufficiency of unsealed honey, and sparseness of bees. The cold would deter a a small population from leaving their nest to ascend into a chilly, vacant hive; absence of unsealed honey-cells with which to fill their honey-sacs would render their departure highly improbable, as they are loth to leave their combs until gorged with sweets, and fewness of bees would enable them to find refuge from the tottering combs against the sides of the hives, making ascent to the upper hive unnecessary. When driving is necessary in cold seasons, the hive containing, as well as that intended to receive the bees, should be thoroughly warmed; and after they have been frightened with a little smoke, some warm, thin syrup should be sprinkled on the bees and combs, and the heated empty hive placed above it; and then if the bees be not too few, as before suggested, they will go up as merrily as at midsummer.—ED.]

BEE-KEEPING IN IRELAND.

I venture to send an account with regard to bees in this part of Ireland. Nearly every bee-keeper has lost his stocks. 'One of my neighbours had four splendid stocks, three of them are dead, and I can't say if the other is alive.' Another had six that lived through the winter and spring, but died in the summer. I have purchased a few, and I was in treaty for another, with a man who had a hole dug ready to smother them in order to get the honey; it was a splendid hive of bees with yellow combs down to the board. I offered him a reasonable price which he refused, and down went the bees into the fire and brimstone; he expected to get 1*s.* per lb. for hive and all (as Earl Fitzwilliam wanted some to bring to England), but found that hives this year contained no honey at all. I intended to feed up with syrup, and he was too late. Another bee-keeper here would keep one all day listening to his theory and practice of bee-keeping. His wife used to manage their four stocks, and when she took her death she said, 'Now, John, go and get four new stands and place the four hives upon them, and take all into your own name, or else you'll have no luck with them.' He did as Mary desired, and in the following autumn I purchased one of them weighing 4 st. 3 lbs. at 5*d.* per lb. 1*l.* 4*s.* 7*d.* This cost him nothing more than the purchase of a new hive 1*s.* 6*d.*; and don't you see, he remarked, 'I had the best of luck ever since.' Well! this year, 1879, he smothered his hive, expecting honey, but failed in getting any. At the time I write, November 18th, 1879, there are plenty of fields of wheat here cut and cutting (so you may imagine the lateness of the season) after our favourites have been put into winter quarters. I hived one swarm in May this year, for a neighbour, with impunity, I had neither veil nor gloves, he was only looking on from a distance and got stung. Well! about the wooden foundation, I have tried it in a skep that had only combs about the size of one's hat. I got boards, dipped them in molten wax, tacked them on to a cross stick with wire, and fixed them firmly in it, they will help to keep them warm, but as I don't like turning up hive now I am unable to report progress. I send you sample of nails* for foundation machine. I have *Bees and*

* The nails are rough, wrought-iron hob-nails; three of them side by side cover an inch, so that a square inch

Bee-keeping, by R. M. Greig, a neat book of sixty-seven pages, a useful work; but I would advise the author to have it illustrated with woodcuts, and sell at Is. per volume; it is really a good work.—J. TRAYNOR, *Tinahely*.

PRESERVING EMPTY COMBS.

On page 132, November No., you allude to this subject, and it induces me to mention the mode adopted in Italy, which is to store in empty petroleum casks, or, failing the casks, in a box, in which is placed a towel that has been steeped in petroleum. The French plan is to hang the combs in an airy loft, no one comb allowed to touch its neighbour.—ARTHUR TODD.

BEE-HOUSES.

I should like very much to see in your *Journal* experience as to the utility of bee-houses. I know you are very averse to them. Mine is so convenient in every way for manipulating that I am very loth to give it up. It holds six stocks—four faeing the south, one to the east, and another to the west. Each hive has its own alighting-board, no two being alike in colour. All the entrances can be closed from inside the house which rests on six legs, standing 2½ feet from the ground. The only disadvantage I can see is the chance of the queen returning to the wrong hive from her fertilising trip. Is it found that more stocks become queenless in hives kept in houses than in those kept on their separate stands? Since I have used your hives I have never lost but one stock, and that was the result of my own ignorance in not knowing how to deal with a fertile worker. I am very interested in bee culture. I feel it may be made a great source of income to the poor when understood.—H. J. S.

[We do not recommend bee-houses so called, because they are expensive to build or purchase. Too many bees are generally crowded into them, the manipulation of one stock usually disturbs all the others, the queens are liable to mistake their entrances and be lost. They harbour vermin, conduce to robbing and fighting, and when no longer required are unsaleable, because of their bulk and the cost of carriage from one district to another. A noted firm offers bee-houses to hold two hives at 4*l*. 4*s*., to hold three hives, 5*l*. 5*s*., and up to twelve hives for from 15*l*. to 19*l*. 10*s*., the dimensions of which are 9 feet wide, 5 feet high, and 2 feet from front to rear, the hives being arranged in two rows of six each, one above the other. The hives will be thus too close together for safety, and the bees likely to make acquaintance with each other and become the reverse of a happy family. The worst feature in bee-houses is the fact that their cost does not include hives, which in many places are excessively dear, and would make the cost of an apiary of a dozen hives and supers without the bees nearly 50*l*. There are not the same objections to a simple shed built upon the ground, the front being open and the hives standing on the firm earth, so that shaking them, except by actual contact, is out of the question, but even in that case the tendency is to overcrowding, and that is the cause of many evils. We shall be glad if others will give their experience with bee-houses.—ED.]

ARTIFICIAL HEAT FOR BREEDING.

A thought occurred to me on reading some of your many replies to correspondents as to stimulative feeding producing brood; but, knowing you recommend it to be sealed before cold weather sets in, I beg to ask your opinion on artificial heat, if you think it possible to produce brood by its aid. I have tried it, and give you my experience so far. I have a stock of bees in a loft, they go through a hole in the wall to the open air: of course the place is so arranged that I have the hive in darkness. I have a gas-light so arranged as to burn right under the hive against a square piece of sheet-iron. The sheet-iron does not touch the bottom board within four inches, neither does the gas-light touch the sheet-iron within four inches; the result is the hive stands in a temperature of 60 degrees, not varying either night or day more than four degrees. I placed two empty combs in the centre of hive (the other combs were partly filled with syrup which was being sealed) and commenced to feed on Oct. 20th, according to leaflet. After the first half-pint of syrup, I let them take one-fourth of a pint per twenty-four hours, and put down artificial pollen on a comb which stood on the alighting-board. Oct. 30th, they ceased to take any more syrup; on opening the hive, I found the syrup stored on what were the empty combs, and the bees clustering there, but no eggs or brood, though I am sure the queen is there. In conclusion, I may say there was no unpleasant smell from the gas, that the bees appeared to be as in summer time, now and again three or four fanning and coming out to clear themselves—of course, owing to darkness, the bees never attempted to fly. In answer, please say if it be likely the queen will commence to lay with these artificial means, and what is about the natural time for queens to commence laying after stimulative feeding. You will see I only wish to know if it be possible to produce brood in this artificial way safely.—JAS. PAGE, *Jericho, Lancashire, October* 31, 1879.

[As the experiment is being tried we prefer to prophesy *after* the event. Opinions on untried theories will not favour result.—ED.]

QUEEN INTRODUCING.—VOLUNTEER LECTURER.

The Italian queen arrived quite safely, and a very fine one she is; and I have a few words to say concerning this particular queen and her few attendants, which may explain why some queens are not accepted by the bees it is wished to re-queen. Well, for the *modus operandi*. I opened the hive, sprinkled with syrup and peppermint, and took the trouble to brush the bees from the combs, as I examined them for queen-cells (no more were found), then finally scented the cluster of bees and the few

would contain nine, whereas there should be twenty-five. They were semi-cubes, but have their top corners forced down by hard blows, rendering them shapeless, and rough in the extreme. We have been asking for nails of sugar-loaf shape with flat tops, of a size that when placed side by side, five of them would come well within the inch; those sent are utterly useless for the purpose.—ED.

Italians, and united them and caged the queen, put her to the bees, and covered all up safe. A few hours after I found the black bees raging furiously about, and dragging the poor Italians about unmercifully. Well, I tilted up the hive, and administered a good puff of paper-smoke, which thoroughly alarmed them; but as soon as their fear wore off, they were at the Italian again; another puff and a good dose of peppermint on the floor-board, and I left them for the night, hoping they would fraternise. Morning came and not a single Italian alive except the queen in cage. It was bad to account for, but now for the sequel: in a jocular way I sent a piece of the comb which had come with the Italians into the house, and told my friends they could taste Italian honey; one and all turned up their noses at it, and I found it tasted most strongly of aniseed. Now this peculiar strong scent must have clung to the poor Italian bees, so that the blacks were able to distinguish it from the peppermint, and thus found out the strangers and destroyed them. However, I kept the queen confined until to-day, and then liberated her, and she seemed to be well received, and is stalking majestically about, young and old making way for her, so that I presume all is well.

That is a good idea of one of your correspondents, to get up a band of volunteer lecturers on bee-culture; and as I am often invited to give a course on phrenology, I will try one or two on bee-keeping this season. I have no objection to be one of your volunteers, but will have my laurels to win in that direction.—W. Crisp, *Chester-le-Street*.

A Lecture on 'Bees and Bee-keeping' was delivered in the Congregational School-room, Somerton, Somerset, on Monday evening, Nov. 10th, by Mr. C. Tite, of Yeovil, in connexion with the Mutual Instruction Society. The discourse was illustrated by about 40 large diagrams, coloured to life (many of which had been lent by Mr. Godfrey, of Grantham), including almost every portion of the honey-bee, from the antennæ to the point of the sting. A model hive, several cases filled with comb in its various stages of construction; English and Italian queens, workers, and drones; queen-cells, and a number of other things of considerable interest to bee-keepers, were also exhibited. At the close of the lecture, Mr. Tite announced that he would be glad to answer questions relating to bees or bee-keeping, and several gentlemen made inquiries as to the best method of feeding, the most easily-managed hives, &c.

A similar lecture was also delivered by the same gentleman on the 18th at the Shaftesbury Literary Institute, Dorsetshire.

Puzzle No. 2. This is capable of several solutions, but that sent by the propounder is perhaps as neat and simple as any; all, however, use nineteen hives. We find that puzzles of the kind are by no means new, though dressed in a new garb. Can our ingenious friends invent a new problem to keep the mind engaged on our avourite subject?—Ed.

Draw an equilateral triangle, and the following lines within it, viz: one parallel to each side, and one perpendicular on the centre of each side, set a hive at the points where the lines meet and intersect, and the puzzle is solved. Answered by W. T. Joyce, Annie Clive, who sent the solution, S. J. Jeffries. Apis.—Your improved solution of No. 1 is the same as published, on its side.

Echoes from the Hives.

Darlington, Oct. 25.—Bees at the Moors.—'I carried to the moors nine beehives about the middle of August, well stored with syrup, and in six weeks brought them home and found they had existed on the supply given at home, there being no moor honey in them. A bee-keeper near me sent twenty-nine hives to the moors, and only got nine hives back alive. Many hereabouts have not one left, and those that have will have to keep them alive by feeding, if that will do. I am giving my bees 14lbs. of sugar each hive before I shut them up for the winter, and if that fails I am done: but I see some of them carrying in pollen, so perhaps the queen is going to breed before winter.'—J. B.

Corsham, Nov. 9th, 1879.—'I must tell you I have covered down my six stocks in bar-frames and in straw skep; I followed the directions given in the *Bee Journal*. They are out to-day, and carrying in pollen, especially the Ligurians.'—T. Owen.

Henley-on-Thames.—'I have examined a great many hives in this neighbourhood lately, and have found one and all destitute of honey and brood.'

Nottingham.—'There are no echoes from our hives here; all are in profound repose, being robed in a white mantle of snow—so far, however, all is well. I have not heard of any losses yet, although where hives have not been fed the present outlook is very poor indeed.'—W. S.

The Season.—'Since my last, which you noticed in last *Journal*, p. 109, my opinion as to weakness of bees has only been too clearly proved. Hundreds have gone down: in fact, I greatly fear that *none* will winter (with very few exceptions). I have some very good stocks—fed as stated since July last—one from an Italian queen sent by you at end of July, and liberated 2nd of August, is as grand a stock as I would wish to have: and two days ago—a very mild day—they were carrying any quantity of pollen—where from I cannot guess. I have been using a Cook's feeder, or an improvement on it.'—F. P.

Queries and Replies.

Query No. 330.—What is the explanation of the following?—1. An Italian queen was introduced successfully about the end of September into one of my strongest black stocks. Everything appeared to go on very well until the 1st Nov. when the queen was found on the alighting-board, and a few of her Italian-worker offspring dying. With some care she partly revived, but was too feeble to be put into the hive, and she died shortly after. About the time of her ejection the blacks began to massacre all the young Italians, and did not leave one alive. Finding that they did not raise any young queens, I introduced another Italian queen after a delay of about ten days, and gave some sealed comb as their supplies were rather limited. 2. What could have been done to stay the slaughter of the young Italians by the old blacks? 3. Is the hive likely to survive the winter deprived of its young bees, even though it is fairly filled with blacks, a great many of which were bred late in the autumn? 4. Should it survive until March or April next, will it be well to give it some sealed brood from other stocks?—J. J. H. *Limerick.*

Reply to Query No. 330.—2. We cannot suggest a remedy for a complaint we cannot understand, and have never heard the like of before. 3. The hive may survive, because the inference is that the black queen had continued breeding until she was removed for the introduction of the Ligurian, so that there is probably a goodly number of young bees. 4. The queen will be a

valuable one when spring arrives, and the stock would be quite worth assisting with brood from other hives, if it be needed.—Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

M. B. R. H. S. G.—Tarring Hives.—Tar is not injurious to bees when carefully painted on to their outer coverings or cases; it should be applied hot, so as to dry quickly, and not present a catch-'em-alive-O bee-trap to such as may take wing and alight upon it. It should be used during dry weather when the bees are not flying. Moveable roofs that require retarring in summer should be removed until dry, others being temporarily substituted.

Destroying Moths is not so easy as their prevention. Strong stocks do not suffer from the pests; a great argument in favour of keeping such only. The worms which become moths should be sought out and destroyed, their fibrous trail being removed from the combs. Hives should be lifted from their floor-boards frequently during summer and autumn that the young larvæ may be cleared away, and all crannies thoroughly probed to destroy all worms that have appropriated them as snuggeries in which they may pass the chrysalis state, to become parasites of future generations. Large wax-worms sometimes bury themselves in the wood of which the hives and bee-sheds are formed, gnawing out their own cradles. When the worms have taken absolute possession of combs, there is no better cure than fire, or the boiling caldron.

Why Bees Work in the Dark.—We are always greatly obliged to anyone who takes the trouble to send us anything that appears interesting about bees, but the 'clipping' with the above heading is so palpably absurd that we should be accused of wasting space and misleading bee-keepers if we republished it. The idea that bees work in the dark because light would cause their honey to crystallize, 'passed muster' when bee-keepers worked 'in the dark' also, but now-a-days it is well known that newly-gathered honey will sometimes crystallize in the combs in the hive without it having been possible for a ray of light to have penetrated to it.

Artificial Pollen, J. Verrier (*Salperton*).—Oatmeal, rye-meal, and pea-meal or flour, are each suitable for bees, and they will take them readily when they require them. To many bee-keepers they are a stumbling-block, because they cannot get their bees to take them. Well, one cannot make a horse drink if he is not thirsty, but if you give him a sharp spin and put him into a heat, he will take it gladly. Bees often take the initiative and visit mills (hence the discovery that they will take meal, we had almost said *meals*, but that might be thought *funny*) when pollen is wanted and cannot be found; but generally the desire for artificial pollen has to be created by stimulative feeding with liquid sweets. We include barley-sugar with the latter, because bees take it only when it has become liquefied; and it is excellent as a stimulant to action in bees, because they cannot take it in large quantities, and judiciously given it is a source of continuous supply. We have had no experience with boiled meal and sugar as bee-food; and beyond an experiment of Mr. Cheshire five or six years ago, when he fed a stock on meal and syrup, and it fermented in the hive bursting the cells and making a mess on the combs, cannot give any results. Whether the addition of salicylic acid to such food will make it safe to use and recommend remains to be seen; we hope it will.

Salicylic Acid.—Many chemists do not keep it, or if they do they charge enormously for it. We will send you the acid for 1*s.* 6*d.* per oz. post free; an ounce will be sufficient to make 2 quarts of painting fluid, and many gallons of food may be rendered medicinal with a like amount, see Mr. Cowan's recipe.

New Subscriber.—We most certainly agree that white loaf sugar is the best wherewith to make syrup for bees, and it is the cheapest also, as cost for cost, it will make more of better consistency and quality than the 'coarse brown.'

Foul-brood. Inquirer.—Mr. Cowan's recipe for mixing salicylic acid is, 1 oz. of acid, 1 oz. of borax, and 4 pints of water, to be used for *painting* hives, frames, &c., for spraying combs, as a preventive and disinfectant. For feeding in autumn and winter,—Use 10 lbs. of lump sugar, 5 pints of water, 1 oz. vinegar, 1 oz. of the above solution, and ½ oz. of salt. For spring and summer, use 2 pints more water, boil and skim.

The Cause and Cure of Foul-brood.—The cause was well explained in an article from the pen of Dr. Schonfeld, of Germany, and translated for the *British Bee Journal* by J. S. Wood, Esq., of Denmark, and no new features have been since discovered to alter the conclusions he arrived at, pp. 130, 131, 132, Vol. II., *B. B. J.* The same able translator gave on pp. 155, 156, Vol. III., the means of cure, and disinfecting hive and combs, also recipes for food under various conditions, and rules to be observed to prevent the spread of the disorder. Those who have the volumes can refer to them, and for those who have not, a *résumé* will be published in our next. Vol. III. also contains an Essay on the subject by the 'Lanarkshire Bee-keeper,' whose long experience entitles him to serious attention.

Bee-Farm.—Mr. Hooker, Epsom, Surrey, informs us that he has not had one reply to his advertisement for a suitable place to establish a bee-farm. Surely amongst our numerous readers this ought not to be possible; the gentleman is anxious to try in the best locality, and asks information on the subject. Does no one know of an eligible place? or is the rent offered insufficient?

SECOND-HAND HIVES.

THE HIVES, BEES, and BEE FURNITURE, which are FOR SALE by AUCTION, have now been assorted. There are Forty-one Hives, of various kinds; Seven with Bees; Twenty-three Sets of Sections, first and second-hand; Forty Feeding Bottles. Numerous half and third sized Standard and Woodbury Nucleus Hives. A great quantity of Frames. Several Observatory Hives. A Lot of Chaff Cushions (Wooden Frames). Zinc Dividers. Floor-boards. An American Honey Extractor, good as new. Quantity of Crown-boards, Super Crates, Circular Zinc Covers, Double Frames for Slingers, Stewarton Boxes. Neighbour's 35*s.* Hive. Lanarkshire Hive (new). A handsome Berkshire Bee-shed, by Sadler of Sonning, and Two Berkshire Bee Hives, complete. The whole, with many other things too numerous to mention, are on View, and the majority may be had for about the cost of materials used in their manufacture. A full Descriptive Catalogue will be published in January.

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THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

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Editorial, Notices, &c.

JANUARY.

'A Happy New Year' to all our friends, and may it be a year of renewed prosperity. The old year died out in gloom, shrouded in fog and mist, as if to hide from the festivities that, as it were, mocked its efforts to crush out the mirth of Merry Christmas. That the past has been a year in which many ills have befallen our land, few will attempt to gainsay, but the evil cloud has had its silver lining, for though the weather during the summer was most deplorable in regard to vegetation, preventing the growth of all the crops whose gathering is usually a feast of enjoyment, it was, nevertheless, so favourable to health that it blunted the sickle of the grim reaper, and reduced his harvest of death. The evil is, therefore, not unmitigated, and there is much room for thankfulness.

Leaving out the weather, which is always wrong and bad for somebody, we doubt if thinking men will not recognise in many other evils the effect of previous unwisdom on the part of man; evils that have grown from seed sown long ago, to bear fruit in 1879. Let us hope its experiences will not have been wasted, and that the new year will show results which will be more generally welcomed. The frost has been severe and continuous for many weeks with very slight exception, and hereabouts (west of London) there has been comparatively little snow; rain there has been, we may say, none for the past three months, the pluvial god having apparently spent his force during the past summer. Bee-keepers are supposed to find little to do just now, but that little ought to be attended to to prevent loss. In large airy hives, bees on the outside of the cluster are liable to drop away, chilled, and if left alone will die, but if raked out with a bent wire, formed like a capital L with a long 'handle,' and warmed in a bottle, many will survive, and may be returned to their nest by inverting the bottle containing them over the feed-hole. A hot water bottle, placed over or under the cluster during a protracted frost, will help the bees greatly, as it will warm up the interior of the hive, and enable them to rearrange themselves, a matter of importance occasionally, but the apparatus should not be allowed to remain when cold, or the moist vapours of the hive will condense upon it and may do mischief. During the present month bee-keepers should make arrangements for the coming spring and summer, that they may be ready, aye, ready! for the good time which is hoped for. Christmas is past, and its tide of festivities will soon begin to ebb, and preparations should then be made in earnest. Associations may find active employment in promoting lectures and entertainments in which bee science may be taught; and it would further the ends they are calculated to serve if Hon. Secs. and Committees would make definite arrangements for coming shows, to prevent their clashing or being overcrowded into a short space of time. To assist so useful an arrangement we will gladly give publicity to the fixtures of dates and places, without charge for advertisement, and will keep the announcement standing in our columns until the dates have passed. Early arrangements should thus ensure isolation of shows and prevent the scrambling amongst intending exhibitors, which happens when there is barely time for them to take themselves or their exhibits from one place to another, often to the detriment of the shows, and the disarrangement of the programme and proceedings. It would also be well to consider the impolicy of holding shows in tents, subject as they are to the adverse influences of the weather at all times. Be it ever so fine and sunny, there is danger of the incursion of bees that may frighten the timid, though, as is well known in such cases, they are too intent on the search for honey to be inclined to attack the visitors.

Accidents, however, will sometimes occur, and if a bee gets entangled in one's dress, it will sting, and the effect will be the same whether inflicted in anger or in self-defence. In wet and windy weather tent exhibitions are scenes of wretchedness that few would care to witness a second time, and during the past year there have been so many experiences of them that it behoves the managers of proposed exhibitions to adopt a better principle, and engage—as at the Crystal Palace, Royal Horticultural Society's Gardens, Alexandra Palace, and the like—scenes for their shows that shall at least prevent the discomfort attending wet clothing and a promenade in mud and slushy puddles.

The British Bee-keepers' Association will open their year's work with a Conversazione at the Rooms of the National Chamber of Trade, 446 Strand, opposite the Charing Cross Railway Station, on the 14th inst., when the Rev. Geo. Raynor, of Hazeleigh Rectory, Maldon, Essex, will open a discussion on 'The Ligurian Queen-bee,' a most interesting subject, and one which will doubtless be practically dealt with. The election of members of the Committee of the Association will shortly be a subject before its members, and it may be well to remind the latter that only those whose subscriptions have been paid will be entitled to vote on the question. Further, we would remind subscribers that the highest number of votes will constitute the candidate thus favoured Chairman for the year ensuing. The names of those qualified and willing to act have not yet been ascertained; and it would ill become us, if the list were extant, to discuss the merits or demerits of any of them; nevertheless, seeing that the chair has been so ably filled by T. W. Cowan, Esq., of Horsham, we venture to hope that there will be no alteration in this respect. We are glad to be able so early to announce that the British Bee-keepers' Association is the first to name the date of its Show for 1880, and that it will take place on the 27th, 28th, and 29th July, at at the Royal Horticultural Society's Gardens, South Kensington. This early fixture should be stimulative to others.

We trust the 'Bee-keeping of the Antients' as handed down by Columella will be found interesting. There is much food for thought in his writings, and much speculation will doubtless be provoked; his charge against the lime, or linden (chap. 4), may have good foundation, though now, they are not thought 'hurtful' to bees.

We have begun an article on Foul Brood, which we hope will fix in the minds of our readers an idea of its nature, and the way it spreads, and shall be glad if we are able to render assistance in a quiet way to those more puzzled than ourselves. We have had a full share of experience with the abominable disease, and are convinced that dysentery is at the root of it—but more anon.

The question of 'Cyprian purity' has been reopened simultaneously by Mr. J. P. Jackson and Herr Gravenhorst; the latter appears to know a good deal about the Cyprians, and how they came from the island, and his opinion considerably strengthens ours as expressed in the October number of the *B. B. J.*

The assertion by Mr. Cheshire that pollen is necessary in breeding (p. 139, Vol. VII., *B. B. J.*) has received contradiction through the *Bee-keeper*, by Mr. Desborough, who, as the result of his experience and observation, has asserted that 'honey, and honey alone,' is the food of the bee in the grub state. We have all along believed that pollen, meal, or other nitrogenous matter is necessary in breeding, and also to keep in repair the tissue and fibre of adult bees; that they may have built small pieces of comb, or raised a few hundred young bees, when none could be perceived in the hive, is not, to our mind, satisfactory proof to the contrary. The milk yielded by animals for the support of their young is not composed of the liquids only which they may have taken, and if they do not take sufficient solid matter for its concoction, their own bodies yield it as long as they are able to so—and with bees, we believe, the same rule will hold good. Experiment with the aid of the microscope will, however, dispel any existing doubt on the subject, though it may not be possible to produce absolute proof.

FOUL BROOD.

Although much has been written of late on the subject of foul brood, no new features have been brought to light either in regard to its cause, prevention, or cure. Its cause was reported in the *British Bee Journal*, Vol. II., 1874, wherein it was shown to be the presence and growth of micrococci in the larvæ of the bee. Some golden rules for its prevention were given in Vol. III. of same *Journal*, 1875, wherein also salicylic acid was recommended as the best known means of cure. These articles were translated from the German for this *Journal* by the distinguished Danish bee-master, Mr. J. S. Wood, of Nyborg—an English gentleman, by the way.

Foul brood has been demonstated to be a zymotic, or germ disease, *i.e.*, a disease that is *catching*, like scarlatina, small-pox, measles, and the like; which are not self-generating, as are many of the ailments that afflict animal existence, but 'break out' and spread where the germs or seeds find suitable soil and congenial surroundings. The germs of disease, like the seeds of plants, may lie dormant for many years,

but, unless they be actually destroyed, they will start into growth at a favourable opportunity, though their existence was not even suspected. Thistle-down, the seed of thistles, will float in the air, and may be carried to regions where such weeds have never been heard of. It may be ploughed into the ground, or remain on its surface for a long time, ere it is subject to the quickening influences that will set it growing; but unless the germ of life within it be killed outright, thistles will be sure to come up to be a nuisance to the farmer, which will spread if not checked. And though he may carefully clear his land from them as far as he is able to do so, there may still be thistle-germs dormant in the soil, and he will always be liable to a visitation by them so long as there are other land-holders who will not take the trouble to destroy them. The germs of foul brood, as, in fact, of all germ diseases, are not visible to the human eye, and only make their presence known by their effects; nevertheless they may come in the wind (as do locusts, and other enemies of vegetation), seeking whom they may devour, and woe betide the unfortunates with whom they effect a lodgment! The germs of foul brood are also termed spores, but having likened them to thistle-seeds, we propose to deal with them as seeds, that the unscientific may not be confused, as they sometimes are when technicalities are used on common subjects. The seed which causes foul brood does not affect mature bees; their bodies do not offer the congenial conditions required for its growth, but when it enters the tissues of the larvæ either with the food administered by the bee-nurses, or by absorption into the body direct, it immediately begins to grow and to multiply amazingly; and the larvæ will quickly die from its inroads upon them. Foul brood may then be said to have broken out, and the question naturally suggests itself, where will it end? Now when cases of fever and the like break out in thickly inhabited places, physicians agree in recommending the removal of the patient, and perfect isolation; there must be no visiting and no communication except with great precaution, and the patient, if he gets well, is not permitted to rejoin his fellows until the danger of infection has passed away. If he die, his body is quickly buried, and his clothing and bedding burnt or disinfected.* In either case his house is thoroughly cleansed, and everything that science can suggest is done (or ought to be) to do what? *to destroy the seeds of the disease which have been propagated by some of them having entered the patient, and found in him congenial soil in which they could grow.** If all the seeds of the disease be destroyed by the remedies thus adopted, and that they can be destroyed by the action of heat and so-called disinfectants there can be no shadow of doubt, no other case will occur until other seed is imported into the neighbourhood, or is brought there in the air, as the thistle-down is into newly-cleared farm lands. But if any of the seed of the disease remain undestroyed, the chances are that the disease will break out again and again until it has killed all, who, like bee larvæ, offer the conditions on which its seed thrives, and who are constitutionally unable to withstand the effects of its growth. We have, however, our hive with larvæ in it, which have been killed by the growth and increase of the seed and its parasite offspring; and it is an ascertained fact that if there were no seeds of the disease in the hive other than those in the cells with the dead and diseased larvæ, the disease could be eradicated from the hive by the removal of the foul cells, if it were done before the matter in them became dry.† When removed, such cells should be burned at once, or buried deeply in the ground, to prevent the flying off of the poisonous particles, and the possibility of their entering other hives, and infecting the honey or larvæ in them. In all hives, however, that are affected with foul brood there is a grave probability that the seeds of the disease exist in the honey, as well as in the brood cells; indeed, the probability is that they first existed there, and reached the brood through food that contained them having been administered by the nurses, and in that case cutting out the

* Burning is thought by many to be the best means of destroying the virus of disease, and if combustion of the articles of clothing, &c., were instantaneously effected, it probably would be the safest, but as ordinarily managed they are set on fire in a field, where the warmth that precedes the actual burning, dries, and sends the seed, germs, spores, or virus whichever term may be most approved, into the atmosphere in quantities that render the process of doubtful utility. This conclusion is practically endorsed at hospitals and infirmaries where such things as contain the seeds of disease, are subjected to dry heat in an enclosed chest, a thermometer attached telling the attendant when the 'cooking' has been sufficient. Disinfectants act variously as agents in destroying the seeds of disease, and it is important that a distinction should be recognised between them and simple deodorants, which may render the air more agreeable to the nostrils without destroying the insidious virus it contains. It may, however, be taken for granted that the destruction of disease, germs or seeds, can only be effected by their coming into actual contact with destructive agents.

† It has been demonstrated that while wet, the germs of the disease are not given off from the matter containing them. In humans it is commonly understood that fever or small-pox is much more 'catching' when the recovering patient is undergoing the process called 'peeling,' *i.e.*, when the outer skin, which has been destroyed by the disease, comes away, and its particles are scattered to the winds. Myriads of the seed-germs are thus given off, and if they are breathed into the nostrils, or otherwise reach the mucous membrane, of a susceptible being, they are absorbed into the system, and the disease thereupon begins afresh.

cells containing the dead remains, though beneficial in a sense, would not prevent other brood becoming affected if fed with the honey already containing the seeds of the disease. The obvious remedy in such case would be the removal of the infected honey, giving other in its place, or stopping the disease by removing the queen, and preventing the further production of brood altogether. Either of these operations, aided by repeated application of the most efficient disinfectants, would appear to offer a reasonable solution of the difficulty, but to have the effect desired the diseased hive should be isolated at a distance beyond the flying range of the adult bees, or they might return, and finding their own hive gone, might import infected honey into other hives in the apiary. Foul brood has been too often described to need description here. It is a terrible malady, and it is well there are some who know its nature, and have the good sense to do all that is possible to prevent its spreading, and becoming a plague indeed; would that all were equally enlightened!

As some evidence of its virulent nature, we quote from the *Times* newspaper of December 5th, a paragraph headed 'Microbi,' as follows:—

'For some time a malady has shown itself among the bees in the province of Biella, Piedmont, but this year it has spread considerably, and produced serious harm. Many apiculturists, owners of from 50, 60, to 100 hives, are now reduced to a few hives, and fear to lose even them. The cause of the malady seems the corruption of the eggs, or the plague transmittable from the infected to the healthy beehives. "I have not as yet been able," says Professor Perroncito, "to form an exact idea of this malady, but it is a fact that it is still raging. From observations made in July and September I have gathered the following facts:—The infected combs are recognised by the particular and characteristic odour of putrefaction. The infected cells have either holes in them or are closed. On opening them a peculiar grey-brown fibrous substance is found, produced by the larva which has died of the disease having become putrid. Examined by the microscope in pure spring water numerous ovoidal micro-organisms are discovered with oscillating or jumping motion, very distinctly, dark-edged, nearly like the *microbi* of the moth of the silkworm, and of the same form, having, *i.e.*, a longitudinal diameter of 0·002 metre and a transversal diameter of 0·001 or 0·0015. Of these *microbi*, some were placed in rows so as to form a species of small wreaths, others in heaps, others indicating a process by which they were multiplied. These *microbi* found on the putrid eggs resist the action of potassa caustica (5 per cent), of crystallized acetic acid, of sulphuric ether, of chloroform, and of desiccation. Pure sulphuric acid makes them lose colour, diminishes the size; they become motionless, and later lose their form, and are destroyed. In nitric acid (diluted in the proportion of 20 per cent water) they lose colour and motion. In pure nitric acid they also lose their ovoidal shape; after many hours the greater part are destroyed, and those that still remain have lost all motion. Attempts to inoculate the healthy hives and also rabbits have been made, but the results have hitherto been inconclusive. The disease is still unknown in its essence, and the means proposed to guard against or to cure it have been but too often inefficacious. Proof of this is to be found in the great mortality of the bees, even with the most experienced apiculturist."'

There can be little doubt but that the bee malady raging in the neighbourhood of Piedmont is what we call foul brood, or that the 'micro-organisms' which are so nearly like the '*microbi* of the moth of the silkworm,' are identical with the 'micrococci,' 'spores,' 'germs,' or 'seed,' whose virulent action we are discussing. The Piedmontese professor, Perroncito, as other eminent scientists have been, is puzzled by the nature of the malady, but has evidently found the key to the solution of his difficulty in the micro-organisms; and if he would follow the experiments of Herr Schönfield, hereinbefore referred to, he would be satisfied of the reasons for the pestilential character it has assumed.

The existence of the disease and its virulent nature being so far admitted and understood, the question arises, what can be done to mitigate its evil effects? When a parallel case arises that threatens to decimate a human population, 'orders in council' are promulgated, hospitals are extemporised, and everything that wise forethought can suggest is brought to bear against it to '*stamp it out*;' and the efforts put forward are at least successful in mitigating the disease, though they may not absolutely destroy it, and though on its abatement the stringency of such 'orders' is somewhat relaxed, the recommendations contained in them for preventing the recurrence of the pestilence are kept constantly before the public mind, and the authorities are ever vigilant in the same direction.

The cattle plague, and foot-and-mouth disease, which have played such havoc with our cattle, were also the subjects of stringent 'orders.' No buying or selling were permitted, nor were cattle allowed to pass along the roads, except by magisterial order, or the certificate of qualified surgeons. All cattle imported were slain at the point of debarkation; all animals infected were killed forthwith, and buried in quicklime several feet deep; and there were many other regulations existing to prevent the spread of infection. The prospect of the potato beetle appearing in our land created a 'scare' such as all the powers of Europe in arms would scarcely produce, so terrible was the name of the invader (?) that did not come; but we fear it will be long ere our legislature will see fit to take bees under their protection and legislate in their behalf, so little is the art of bee-keeping appreciated in high quarters as a branch of scientific agriculture.

Seeing that there is no enactment to prevent the spread of the disease by the importation, sale, or removal of infected stocks, and it being impossible for bee-keepers to establish a law

that shall be binding upon those unwilling, through ignorance or prejudice, to yield obedience to it,* it is left to individual bee-keepers to protect themselves in the best way they can by adopting all possible precautions. To aid those intending to keep bees, and those at present free from the visitation, we offer a few suggestions that, if carried out, will be helpful in preventing the importation of the foul brood into their apiaries.

Prevention No. 1. Never buy stocks of bees on any consideration, but purchase swarms only of responsible persons. That this will meet with disapproval from many who are not 'responsible persons' we have little doubt, and some whose character is unassailable may also object, but writing after considerable experience, we strongly urge the wisdom of the advice, not only in respect of foul brood, but as a general principle. Stocks of bees contain honey, combs, and pollen, and the seeds of the disease may be latent in either of them. Bee-keepers seldom care to sell their stocks until they get tired of them, and that does not often occur while they are profitable. We have visited many unprofitable apiaries with a view to purchase, but nose and eyes have caused us to decline. Very strong stocks, that one would think *could not* be wrong are often the first to come to grief in spring through having robbed a neighbouring hive in the previous autumn. Bee-keepers who want to get rid of surplus stocks do not want to part with their best, and purchasers would do well to fight shy of indifferent ones for keeping. We refrain from supposing that any one would wilfully sell a diseased stock. Of course the seller would not know anything about it (?), but the purchaser would soon discover it to his cost. Again we urge, do not buy stocks; buy bees only in new hives; it will be better for buyer and seller too, as no after complaints can have reference to the latter, and the former will know that he has done his best to keep the enemy out of his apiary.

2. Never use old hives, floor-boards, quilts, frames, or supers, unless they have been boiled or baked, cleaned, and disinfected. There is not a more fruitful means of spreading foul brood than the use of old hives, &c., that have not been thoroughly cleansed. Once affected by the disease, its germs or seeds will remain dormant for years, until a combination of circumstances starts them into life again, when the disease will begin afresh. If boiled or baked, and thoroughly cleansed, there is a hope that they may be freed from the taint, but we would advise a fumigation with sulphur-fumes as an easy, cheap, and reliable mode of making sure of the death of the enemy.

3. Never feed bees on honey, from whatever source obtained, unless it has been previously boiled. Honey is the principal vehicle in which the seeds of foul brood are conveyed to the brood cells. It is a sweet that is continually changing in its character; and, apart from foul brood, may disagree with the bees, causing dysentery and death. It may be urged that honey is the natural food of bees, and ought to be harmless, to which we reply that honey gathered in the natural way by the bees, and sealed by them at the proper time, *is* harmless and good, but to give bees that which may contain the seeds of their destruction is simply ridiculous when sugar foods are so much cheaper, and perfectly wholesome.

4. Never interchange combs without careful inspection of the brood of both. This is a common practice, but is better avoided altogether than pursued as freely as some writers recommend. A hive may be tainted with foul brood, yet give no sign of its presence, so that there is always a risk in the interchange, but when effected without careful scrutiny there is great danger.

5. Never use old combs for building up colonies. By old combs we mean such as are taken from hives that have become tenantless from any cause. Combs from which all brood has hatched out, and which have been removed from healthy hives to prevent them becoming mouldy, and to enable the bee-keeper to reduce the capacity of the bee-nest, are not included in the above description. Thousands of stocks die of foul brood during winter, but its presence is not even suspected by the inexpert, because they cannot detect any symptoms of it in the spring when they find their hives untenanted. Hives badly infected in autumn will, as a matter of course, be short of bees for wintering, but after breeding has ceased, and the foul brood becomes dry, they will clear out all the decayed

* Although it is impossible for any number of bee-keepers to make a law that shall be binding on all alike, it has occurred to us that a great good might be effected if the Bee-keepers' Association were to make the suppression of foul brood an object of their special care. There are few bee-keepers of note in the kingdom who are not members of one or other of the associations that are doing such good service in the cause of apiculture, and there would be fewer still if the suggestion we now offer were carried into effect, while foul brood would become a subject of close attention and repression, and purchasers of bees would be more largely protected than is possible under present circumstances. We propose that associations should nominate experts who, under well-considered regulations, should be empowered to visit the apiaries of those who deal in bees, and to give certificates of immunity to such as are entitled to them. Such visits could, of course, only be made with the sanction or by the invitation of the intending vendor of bees, but the desire to possess a certificate of immunity from foul brood, as a tempting security to intending purchasers, would have a beneficial effect that needs little explanation.—Ed.

matter that it is possible for them to remove, and the inexperienced will not detect the dry scale of poisonous matter lying lengthwise on the bottom of the cells, and which, in drying, has been giving off the seeds of the disease to poison the honey, combs, and hive, and float by millions in the atmosphere, to the pollution of the whole neighbourhood. When combs were scarce, and their manufacture expensive, in loss of time and cost of bee-life, the temptation to use old combs was greater than now, when foundation is cheap, and new combs can be so readily commanded; but old comb should now go to the melting-pot, and the sooner it is boiled up the better it will be for the neighbourhood.

6. Never introduce stranger bees with a purchased queen. The danger herein is in the possibility that the bees may have in their honey sacs honey that is unwholesome, and in their bodies fæcal matter that, if discharged, may infect the hive. A queen alone is attended with the minimum of danger, as she cannot deposit honey, and is very seldom the subject of dysenteric or dropsical ailments.

7. Never open a suspected hive in the open air. There may be bee-keepers who would scout the idea of taking a hive within doors for examination, but it will be wiser to do so than to risk the chance of one drop of its honey being stolen and conveyed to another hive. And it is not a very formidable undertaking, after all. Carry the hive bodily into a shed, stable, or unused wash-house, for want of a better enclosure. Set a decoy hive in its place, close all means of egress from the room or shed, and open and close the hive in the usual way, letting the bees in the meantime fly to the window. When satisfied with the examination, carry the hive back to its stand, pitch the decoy hive into a disinfecting tub, cover up (darken) the window of the room or shed from the outside, and set the door wide open. The bees will then leave the window, fly out through the doorway, and return home, and there will have been no danger of spreading infection, should it exist in the suspected hive.

(To be continued.)

DYSENTERY AND FOUL BROOD.

There is such an extraordinary tendency in stocks that suffer from dysentery to become afflicted with foul brood that we have come to regard it as the almost certain forerunner of that disease. Foul brood being a germ disease, and its spores of fungoid growth, we are compelled to the conclusion that the air is so charged with fungoid spores that the interior of a dysenteric hive offers the requisite conditions for their development into foul-brood germs, or *micrococci*, which then become contagious and infectious, as we have elsewhere shown.

It has been convincingly proved that the air DOES contain innumerable spores which produce the fungoid and fermentive growth whose appearance on meat, vegetables, &c., is recognised as mould, must, &c., and the effect known by the term 'going (or gone) bad,' and that all substances liable to decay are variously affected by them if exposed to the atmosphere. Knowing, also, that hybridisation produces most wonderful changes in plants, it has occurred to us that similar effects may be produced by the mingling of fungoid or fermentive spores, the outcome being a growth that sets up disease wherever in turn IT will grow. If this be anywhere near the truth, it will solve many difficulties as to the production of new diseases, and will certainly make it plain how foul brood originates in so many places that have never known it before. Dysentery is a disease of a fermentive character; it is not catching until the bees eat the fermenting honey in the hive, and it is comparatively harmless in weather when the bees can fly. But is it not likely that a mingling of fungus spores in the diseased hive may produce hybrid spores that will work destruction to animal or insect life under particular conditions? Perhaps the idea is an old one and has been disproved, but, on the face of it, it appears feasible, and we hope to hear the opinions of others on the subject.

WINTER FEEDING.

We are repeatedly inquired of as to the best way of feeding bees that from various causes have been neglected at an earlier date, and are approaching starvation at a time when, ordinarily, they cannot take the food offered to them. There is a difficulty in supplying bees so situated, but it may be met and overcome by a little trouble on the part of their owners; and considering their probable scarcity and the high price they will average in the spring, they are really worth all the trouble careful attention will necessitate. Had we any stocks in the condition mentioned, they would be carried into a dark cellar or room with a temperature above freezing, and there, as in a long night, they would be fed with say a pint of thick syrup, warmed so that they could take it readily, and afterwards would have barley sugar until they had sensibly increased in weight. On fine mild days they would be set out on their own stands for the convenience of flight should they need it, but their chief time would be spent in the dark, out of reach of frost and the liability to robbing. While so confined to a cellar there would be no obstruction to their hive entrance;

if there were they would worry to get out and would exhaust themselves by their efforts. If they do not increase in numbers, by breeding, under such treatment, they should be united at as early a date as is consistent with safety.

BEE-KEEPING AND FARMING.

In these days of foreign competition, bad harvests, high rents, wages, rates, and taxes, and with farms to let by the score, it is not difficult to believe that agriculturists in general are suffering great hardships; and, indeed, are passing through a fire of tribulation from which none can come forth unscathed, and in which many, with their belongings, will be altogether consumed off the face of the land. At such a time it behoves every one to look about for means to stem the tide of evil with which farmers are, as it would seem, on all sides beset; and while some are propounding schemes in which the cultivation of crops other than corn as a staple, and their conversion into milk, meat, butter, cheese, &c., is suggested as a means of mitigating its depressing influences, we venture to suggest that bee-keeping should be adopted as one of the aids of which they stand so much in need. There are few farms on which seed-crops are not grown for profit, and in many, large areas are devoted to them, and there is not one of them but yields bee-food in greater or less degree. There are several of these crops that, in good seasons, would yield in honey more than would pay the cost of rent and tillage, while individually they would be greatly increased by the more certain fertilisation of its blossoms, which the presence of the bees would insure. In green crops there are many that yield honey enormously, those of the clover tribe being the most productive; yet the greater portion is allowed to waste itself, or serve only as food for insects other than bees. If a keen farmer saw the liquid strength of his manure-pit running to waste in his ditches and brooks, he would think his bailiff was crazy for permitting such a shameful waste; but the product which insensibly steals away the strength of his land, he quietly allows to evaporate, without making an effort to save it. On our way to the late Lincolnshire show at Long Sutton, we casually made conversational acquaintance with a north-country squire, our bee-belongings originating the colloquy. We passed many acres where mustard was yet in full bloom, the sight of which elicited a regret that our bees had not access to similar gold fields, and replying to his questions, gave expression to our conviction that notwithstanding the feeling that bees were beneath the notice of the British farmer, the time was coming when, in self-defence, he would be compelled to cultivate them as a cheap source of revenue. In such times as have fallen upon agriculture, no farmer can afford to waste his honey crop, in many instances amounting to several hundredweights yearly, and which, with a little attention to the rotation of crops, might be made into much larger quantities. Every farmer knows the date when his orchards, chestnut, lime, sycamore, and other trees will blossom, and also the time when his flowering crops will come into bloom; and if they do not keep up a succession for the bees to work upon, how easy would it be to sow an acre or two of mustard or rape to fill in the intervals that would occur, and thus secure a constant source of supply for them, and a surplus for his own profit. Our whilome friend quickly saw the feasibleness of the suggestion, and 'durned if he wouldn't try it,' at the same time expressing his surprise that the subject was not mooted in agricultural newspapers. We were treated to the usual description of how the cottagers in his 'part' destroyed their bees, &c., and for the first time he was made aware that in America there are large farms devoted to bee-culture, where the vegetable produce is of secondary consideration, and bees hold the first place, and yield the chief part of the income. If our farmers would think seriously of the value of bees as 'cattle' that cost little, require little attention, and are very prolific, they would surely see in them a ready means of adding to their incomes, and producing in tons the nectar so much in demand. Rape and mustard-seed pay well for growing. Cabbage-seed is also worthy of note, and requires no attention after the green crop has been cut, until the seed is ready to garner, yet while in flower they all yield honey in abundance, and with bees to collect it, will yield a large profit to their owner.

In our journeyings to and from bee-shows in various parts of the land, we have seen whole tracts of land, golden with wild charlock, each an Eldorado for bees, that would furnish honey of fine quality and in any quantity; and wherever white clover and other of the trifolia are grown, they form a mine of wealth that needs only to be gathered in. Bean-fields yield honey enormously, which is mostly wasted for lack of bees; and there is scarcely a hedgerow, dyke, or brake, that has not, or could have, a costless source of honey supply. Farmers should look well into the matter; and market gardeners, and all others who cultivate for fruit or seeds, should acquaint themselves with the principles of the art. Bee-culture will not, perhaps, prevent the necessity for practising other economies, but of itself it is a most valuable one, as we hope hereafter to prove.

(To be continued.)

HIVE CONSTRUCTION.

Our great and revered master, the Reverend L. L. Langstroth, in his delightful work, 'The Hive and Honey Bee,' in referring to hives and their requisites, says: 'For man to stamp the label of perfection upon any work of his own, is to show both his folly and his presumption. Perfection belongs only to the works of Him, to whose omniscient eye were present all causes and effects, with all their relations, when He spake, and from nothing formed the universe.' With this idea in mind, we approach the subject with humility, and though willingly offering our best thoughts, and the deductions which experience has forced upon us, we are yet convinced that though comparative excellence in hive-building has been achieved, there is much that is desirable still unattained. In thinking of hives and bees, and of the natural condition of the latter, we are too apt to forget, or ignore—which is much the same thing—that the bees have no object in view beyond the increase of their numbers, and their sustenance, the good they otherwise do being incidental thereto. Alike with all other things that have life, they have the power of increase in proportion to the suitability of their surroundings, and they vary their course of life to meet the difficulties and emergencies to which they are occasionally subjected. In a locality where bees can live and fairly prosper, there is little to fear for their welfare, through an occasional bad season, or a succession of indifferent ones, because in the average of years they are able to gather and store more food than they require, and its accumulation is a safeguard against destitution in bad times. It would, therefore, appear that except through loss of queens, and robbing, accidents which appear to be a natural provision against excessive increase, there is little to interfere with their well-being. It, however, became so well known that bees, as a rule, stored honey in excess of their general requirements that man who has the firmest belief in the doctrine that all things created are for his special benefit, has from time immemorial helped himself from their store-houses, often ransacking their home, and destroying the inhabitants in his greed to obtain their luscious treasure. This brutal work has been also defended on the ground that it is right and wise to prevent too great increase in bees; but it surely is not in accord with the Mosaic law:* 'If a bird's nest chance to be before thee in the way in any tree or on the ground, whether they be young ones or eggs, and the dam sitting upon the young or upon the eggs, thou shalt not take the dam with the young: but thou shalt in any wise let the dam go, and take the young to thee, that it may be well with thee; and that thou mayest prolong thy days.'

Whether it arose from a desire to act in accordance with this law, or is the outcome of the worldly wisdom that teaches the folly of killing the goose to get the egg, is not on record; but as may be seen in the writings of Columella, now being republished in these columns, methods were devised, which he, 1900 years ago, described as 'antient,' for removing surplus honey for the use of man, and leaving the bees with sufficient for their winter use to preserve them alive. That the method employed was crude, is not to the point; it existed, and was taught; and has been practised more or less during many centuries; but it was reserved to modern days to facilitate the process by altering the fashion of the hive.

This brings us to the point at issue amongst bee-keepers, viz., 'Which is the best hive?' and in discussing the question, we trust we shall not forget, having due regard to the *comfort* of the bees, that improved hives are for the benefit of the *bee-keeper*, to enable him to remove surplus honey in the readiest way, and perform such operations with the bees as may be requisite for their cultivation.

In all hives the comfort of the bees is essentially the chief consideration; they should be perfectly dry, and capable of continuing so, and they should protect the bees from the heat of the summer sun, and during cold weather should retain the heat generated by them, three desiderata that the bees would ask for, if they could make their wants known in words, and they might supplement them by begging their owner to stand aside, and let them work without molestation.

Now, in studying the comfort of the bees, it is difficult to conceive a better principle than that which their instinct teaches them to adopt for themselves. We are not alluding to the unfinished efforts of late or weak swarms, but to the completed bee-nest, the work of a good swarm, in a good year, in a simple box, tree trunk, or skep hive, where the bees have done their best during summer, and made their own preparation for winter. In such a hive we find that in the part devoted to breeding the combs are about an inch thick, and the spaces between them about half-an-inch wide, permitting the bees that travel on the respective combs to pass each other without their backs touching each other inconveniently. Outside the brood-nest, the store of honey and pollen will be found; that which was gathered sufficiently early being toward the outside of the hive, and sealed over, while that which had but lately been obtained, will be found in, and immediately about, the brood-nest itself. In all the combs on which the honey has been sealed,

* Deut. xxii. 6 and 7.

the cells will have been elongated, so that the passage between the combs will be narrowed to not more than a quarter of an inch in width; and all the sealed honey-comb will be built against the sides or walls of the hive, so that amongst the honey stores very little indeed of the hive itself will be exposed, a fact well worthy of note when hive construction is being considered. The shape of the hollows in which bees make their nests causes them to assume great variety of forms; but in all cases where the cavity is not too large the sealed honey-combs are attached to the walls of the hollow, separating the spaces between them as with solid girders. The shape of the cavity would, of course, govern the shape of the nest, but the principle of storing would be the same; if higher than wide, the tendency would be to store at the top; if longer than high, the bees would store at the back and sides, their rule being, it would seem, to store their wealth away from the entrance, apparently for protection against cold and enemies.* From these observations it seems that in a natural hive the bees attach their combs to its roof and walls, forming a series of inverted chambers or galleries, each entirely separated from the others in the upper part, except by occasional holes caused by the bees having begun to build their combs in divers places;† and that is undoubtedly the condition of hive in which bees are most comfortable in cold weather, and the more nearly such condition is provided for in improved hives, the better they will be as vehicles in which to winter bees.

As we have before stated, close hives, such as boxes, tree trunks, and straw skeps, in which the combs are not moveable, have been found inconvenient to the cultivator, both in regard to the removal of surplus honey, and the examination of the bee-nest; and the most advanced men of the age have applied themselves to the production of a hive which would give the bee-keeper full command in both directions.

We do not here propose to follow the experiments of the great masters who spent years of their life, and much of their fortune, in contriving the moveable comb hive;* but for present purposes will take the frame hive as we found it, for comparison with that we have been describing. (*To be continued.*)

AMERICAN AND BRITISH BEE JOURNALS.

We regret exceedingly that through postal irregularities so many journals are lost on both sides the Atlantic. We do not know how to correct these irregularities, but are endeavouring to prevent them by the interchange of journals in bulk. We have concluded satisfactorily with the celebrated Editor of *Gleanings*, author of the invaluable *A B C of Bee Culture*, and are hourly expecting a favourable reply to our letter to Mr. Newman, our late visitor to England, on the subject, of which due notice will be given.—Ed.

BRITISH BEE-KEEPERS' ASSOCIATION.

The Monthly Meeting of the Committee for December was held at 105 Jermyn Street, on Wednesday, the 11th Dec. Present, Messrs. T. W. Cowan (in the chair), J. M. Hooker, Rev. E. Bartrum, W. O'B. Glennie (Treasurer). The minutes of the previous meeting having been unanimously confirmed and signed, the Secretary reported that a letter had been received from Mr. Cheshire, stating that the diagrams would be completed, and ready to hand over to the Association for publication not later than the first week in January.

A letter was also read from the Secretary of the Royal Horticultural Society, announcing the dates upon which the principal Flower Shows at the Royal Horticultural Society's Gardens would be held during 1880, and suggesting that if the Committee of the British Bee-keepers' Association were desirous of holding their

* An idea prevails amongst many bee-keepers that bees store their honey in the coolest parts of their hives, but this we believe is the result of, may we say, inverted reasoning. Bees will not store it at all unless sufficiently numerous to gather more than is required from day to day, and then, per force of circumstances, they *must* put it outside the parts of their combs not occupied with brood. In hot weather, when the incoming of their sweets is usually greatest, they are able to build new combs in which to place it, and ere sealing it they so elongate the cells, and thus narrow the passage between the combs, that presently in cooler weather, with their numbers diminishing, they find it impossible to occupy them, and thus they are found in a cool, if not the coolest part, though when the combs were built, and the sealing effected, there must have been as much heat there as is always requisite for the secretion of wax and comb-building.—Ed.

† It may be commonly observed in hives, that bees begin to build certain of their combs in several places in the same line, forming pear-shaped pieces, which they eventually join together, and form into one sheet; but whenever this occurs, they leave small holes near the top, which they do not fill up. These are often attributed to the foresight of the bees in providing winter passages through their large combs, but are accidental as to their position, though the mode of building that insures their production evidences minuteness of design in the great Author of Instinct, who left nothing to be desired when He looked upon His work and saw that it was good.—Ed.

* When inventors and discoverers have brought things long desired and anxiously sought, into common use, it is pitiful to think how quickly they are forgotten, or their existence ignored. It appears easy for the world to forget the men who found both Lever and Fulcrun wherewith to move it, and advance its interests. The daily newspapers teem with instances of unacknowledged and unrequited worth, in men who have, at their own costs, successfully battled for their fellows, and found for themselves only unhonoured graves. There is an instance in our midst, the originator of the moveable comb hive, to whom bee-keepers of all nations owe a deep debt of gratitude, yet for whom we have not been able to collect a ten pounds to cheer him in his hour of need.—Ed.

annual show at the Gardens of the Royal Horticultural Society, the date of such show should be fixed, and published; and it was resolved unanimously, 'That the Chairman (in the absence of the Secretary) should call upon the Secretary of the Royal Horticultural Society, and fix the date of the annual show, in accordance with the recommendations contained in the above letter.'*

The Rev. E. Bartrum reported that he had been in communication with Mr. Buckmaster, of the Science and Art Department at South Kensington, respecting the Professorship of Apiculture, and that he was prepared to submit a resolution upon the subject at the General Meeting in February next.

It was resolved that the next quarterly Conversazione should be held on January 14th at the Board-room of the National Chamber of Trade, 446 Strand (opposite Charing Cross Station), and the Chairman announced that the Rev. G. Raynor, of Hazeleigh Rectory, Maldon, Essex, had promised to read a paper upon the following subject:—'The Ligurian Queen-bee: her introduction to to alien stocks, and the best means of pure propagation.'

Mr. W. A. Kirshner was appointed Auditor of the past year's accounts; and it was arranged that the Balance-sheet should be prepared and submitted to the next meeting of the Committee previous to publication.

The Treasurer read the balance-sheet for the month ending November 30th, as follows:—

INCOME.

	£.	s.	d.
Amount received Jan. 1 to Oct. 31 .	439	0	7
" " Nov. 1–30 . .	12	19	0
Total—	451	19	7

EXPENDITURE.

	£.	s.	d.
Amount expended Jan. 1 to Oct. 31 .	369	18	7½
" " Nov. 1–30 . .	30	16	4½
Balance in hand . .	51	4	7
Total—	451	19	7

LETTER FROM THE HON. SECRETARY.

DEAR SIR,—Will you allow me to remind such of your readers as are members of the British Bee-keepers' Association that before your February number makes its appearance they will be called upon to give their votes in the election of the Committee for the year 1880? The voting papers will be issued immediately after the Quarterly Meeting, which is fixed for January 14th. Full directions as to the mode of voting will accompany the papers, but it may be well so far to anticipate these, as to say that every voter should give the number of votes to which he is entitled by his subscription, to *each* of the nine candidates whom he may select. A voter cannot give nine times the number of votes belonging to him to any one individual candidate. Each voter must affix his signature to the voting paper in the place indicated. Ladies are entitled to vote according to the amount of their subscriptions.

At the commencement of the year 1879 the number of members on the register was 158; of these only 74 voted, leaving 84 who did not exercise their franchise. It is to be hoped that this year all the members of our Association will register their votes, and thereby show that they take an interest in the affairs of the society to which they belong. No one need be afraid of giving offence by not voting for any particular candidate, as the candidates are not allowed to know the names of those who vote or do not vote for them.—I remain, Sir, yours faithfully, HERBERT R. PEEL, *Honorary Secretary.*

P.S.—Voting papers will only be sent to such members as have paid their subscriptions for the year commencing May 1st, 1879, and terminating April 30th, 1880.

* In accordance with the above resolution, Mr. Cowan waited upon the authorities of the Royal Horticultural Society, and fixed Tuesday, July 27th, and the two following days, for the holding of the annual show.

REV. WILLIAM CHARLES COTTON.

This veteran bee master was born in 1814, and died on June 22nd, 1879. Mr. Cotton was the eldest son of the late Mr. W. Cotton, some time Governor of the Bank of England, and inventor of the automaton sovereign weighing machine. He was formerly student of Christ Church, Oxford, and Newcastle scholar. He was through life an ardent bee-keeper, and by his writings and personal example did much to popularise the science of apiculture. When quite a boy his father read to him a translation of Virgil's fourth Georgic on bees, and the next morning he tried to carry out Virgil's instructions how to get a swarm of bees; so he tried to bribe his father's farming man, by promising him a small taste of his first honey if he would kill a two-year-old bull calf, so that from the maggots when it decomposed, he could get a swarm of bees. His father, hearing of his son's wish to kill the stirk, procured for him his first swarm of bees.

In 1833 the Oxford Apiarian Society was formed, through the exertions of Mr. Cotton, who undertook the duties of secretary. In 1838 he wrote *Two Short and Simple Letters to Cottagers*, from a Bee Preserver. Twenty-four thousand copies of these letters were published. In 1842 he produced the well-known work, entitled *My Bee Book*, which not only treated of the best modes of management of bees at that time in all parts of the world, but which also included several rare treatises of former English apiarists on the economy and practical management of bees.

In 1841 Mr. Cotton became domestic chaplain to the late Bishop of New Zealand, Dr. Selwyn, with whom he embarked on board the *Tomatin* at Plymouth, on the 26th of December of that year. On the voyage out, and subsequently, Mr. Cotton rendered the Bishop much assistance in translating the Bible into the native tongue.

Mr. Cotton took with him four stocks of bees; and many marvellous stories are told of his mastery over his favourites on ship board. He was very successful in the introduction of the cultivation of bee-keeping in his adopted country; and in 1848 he produced his *Manual for New Zealand Bee Keepers*, published at Wellington, New Zealand. Before the introduction of the honey-bee into New Zealand, they had to send over to England every year for the white clover seed (*Trifolium repens*), as it did not seed freely there; but by the agency of the bees they are now able to export it. New Zealand is such a good country for bees, that Mr. Cotton told me, one stock had increased to twenty-six in one year. The natives call the bee the white man's fly.

After his return to England, Mr. Cotton was presented in 1857 to the vicarage of Frodsham, Cheshire. I made his acquaintance in August 29th, 1868, and we kept up the correspondence to the last year of his life. He was a very kind, generous man, and capital company. On the 3rd day of June, 1869, he was watching my bees in the Unicomb Hive, when I happened to say to him, 'You see the queen always turns her body so that her head is below the horizontal line when laying an egg!' He exclaimed, 'Does she?' I said, 'There she is again turning her body so that her head is below the horizontal line.' After watching the queen lay a number of eggs, he said, 'I have represented the queen laying with her head upwards in *My Bee Book*, but in the next edition I will turn the plate the bottom side upwards, when it will be all right.' The Rev. L. L. Langstroth and others

have copied this plate out of Mr. Cotton's *Bee Book*, and have all made the same mistake.*

In 1872 Mr. Cotton published a most amusing work, entitled *Buzz-a-Buzz: or the Bees Done Freely into English*, by the author of *My Bee Book*, from the German of Wilhelm Busch. It is written in rhyme, profusely illustrated; and as the author says in his preface, 'The verses were written up to the pictures rather than translated from the German text.' It is a most amusing production, and there is much truth lying hid under the comical stories, and still more in the illustrations, and the notes which are appended may be found useful even by scientific bee-masters; and anyone who saw the honest, burly (weighing upwards of twenty stone) English form of the author, in his quaint blouse, at the first show of the British Bee-Keepers' Association, will read *Buzz-a-Buzz* with redoubled delight.

Mr. Cotton to the end of his life retained his love for the fascinating study of his youth. He took a great interest in the establishment of the British Bee-Keepers' Association, became one of its first vice-presidents, and was one of the judges at its first show at the Crystal Palace in 1874. Though in issuing his *Letters to Cottagers*, he designated himself a 'Conservative Bee-Keeper,' he was ready when convinced of the superiority of the 'more excellent way,' to cast on one side the mode of management of his early days, and to advance—foot by foot, and shoulder to shoulder—with the most expert of bee-masters.

The late Mr. Cotton was the elder brother of Lord Justice Cotton, and he died a bachelor.—William Carr, *Newton Heath Apiary, near Manchester.*

HERR GRAVENHORST.

I have the honour to send you my photo, also an article for your *Journal*, if you will make use of it. You are in the right: Mr. Newman's report is somewhat disappointing. My report will be published in the first number of the *Bienenzeitung*, 1880, and will be somewhat longer. I shall write five articles under the head, 'My Trip to England.' 1. My Journey to England. 2. The Kensington Show. 3. The Bee-keepers' Banquet at Horsham. 4. My Visits to some English Bee-keepers. 5. The Principles of Bee-keeping in England in opposition to German Bee-keeping. Could I write English as well as German I would give you a translation of all or one of the five articles, but perhaps you will find another translator if you want to read and publish my report. My opinion in regard to the Cyprian bees you will find in the November Number of the *American Bee Journal*, p. 508. The translation is very correct. Wishing you good luck in the new year.—C. F. H. Gravenhorst, *New Brunswick, Dec.* 16, 1879.

THE TONGUE OF THE HONEY-BEE.

By Prof. A. J. Cook.

(*Concluded from page* 160.)

Length of Tongue in different races.—I have measured hundreds of tongues under the microscope, with the camera lucida, and have been much interested to observe the wondrous uniformity in length where the bees were from the same colony or from the same apiary, especially if close breeding had been practised. Tongue after tongue would show a variation of less than 0·25 of an inch. I have found the length of the American black bee's tongue to average about 0·24 of an inch in length, from the base of the mentum to the tip of the ligula. American-bred Italian bees I have found, when measured by the same scale, to have tongues ·02 of an inch longer. Some bees, said to be Cyprians, but closely resembling our black bees, except that the down on the thorax was a little more yellow, I have found to possess tongues a little shorter than those of our American Italians, though the average is but very little less. I have examined bees' tongues from workers reared from two different imported queens, and found that in both cases they exceeded in length those of our American-bred bees, though the difference is very slight.

In 1878 I measured the tongues of some bees sent me for Cyprians. The bees were very yellow and beautiful. I found them to possess the longest tongues I have ever met; but there was very great variation. I had but few bees, and sent for more, which never came. I had arranged the present season for bees of the various European races, and had been promised specimens; but, greatly to my regret and disappointment, the bees have failed to come, so I have to make this but a partial report.

That the added length is of practical importance I have proved as follows:—Honey in a vessel covered with fine gauze was placed before Italians till they ceased to eat, because the honey was beyond reach; the vessel was then placed before black bees, which failed to reach the fluid. The vessel was then filled and given first to the black bees, which worked till the liquid was inaccessible, when it was placed before Italians. These would invariably commence to sip the honey. Again, a box, one half inch deep, without top or bottom, was covered with fine gauze, having fifteen meshes to the inch. A glass was then placed in the box, so inclined, that while one end rested against the gauze, the other was one half-inch from it. The glass was thinly spread with honey on the side next the gauze. This was placed in a hive of Italians, when the glass was cleaned of honey, for a distance of twenty-four meshes from the edge where the glass rested on the gauze. The black bees could only reach, and only cleaned, for nineteen meshes: many trials gave the same result. This then shows why Italians can gather, and often do collect from flowers which fail utterly to attract the black bee. The nectar is beyond their reach.

Conclusions.—It would seem from the above that American-bred Italian bees have shorter tongues than those direct from Italy. It seems very probable that 'Natural Selection,' the very law which raised the Italians to their position of superiority, also gave to them their longer tongues. Shut up in their mountain home, a mere isolated basin, where competition must have been very excessive, nature took advantage of every favourable variation, and developed those striking excellences peculiar to the Italian. During these ages there was no kindly bee-master possessed of the intelligence sufficient to nurse the weaklings, nor any 'Dollar-queen business' to stimulate indiscriminate breeding, and the weak died victims to starvation. And so we are indebted to the stern, inexorable law of nature for the incomparable breeding which wrought out such admirable results in far-famed Liguria.

Unquestionably the crowded apiaries of Austria and Germany have heightened the 'struggle for life,' and this had a similar tendency to develope superior excellence in the European black bees. It is more than probable that the German bees of crowded Europe have longer tongues, and are generally superior to the same in America, where they have long been favoured with broad floral areas, and comparative absence of competition. I should expect that this very law might have developed varieties of the black race, which are superior to those of the same race. It is more than possible that 'survival of the fittest' explains the origin of the superior varieties which are said to exist in various provinces of Europe. For the same reason we should surely expect superior excellence in the Cyprian bees. Crowded as they have been for long years or ages, in their small island home, the principle of 'survival of the fittest' must have been working

* In Langstroth's book the queen is simply represented as surrounded by her workers, and not in the act of laying. —Ed.

powerfully to weed out the inferior, and to preserve and make stronger the superior. And so the great poet has well said, 'Sweet are the uses of adversity.'

Practical Conclusions.—From the above considerations it seems obvious, that would we perpetuate the excellences given us by the skilful breeding of nature, though we may not destroy all the feeble, as nature has done, we must assuredly study, and observe so closely, that we shall know of a surety which are our very superior queens, and be even more careful to breed from no other. Whether care or carelessness will be most promoted by our present system I leave for you to say. But I do wish that we might have at least a few breeders with time, means, caution, skill, and patience, who would work with earnest zeal, to not only keep all the excellence we now have, but to augment this excellence as I am sure it may be augmented. But if our cheap queen system is to continue, then, surely, we may well stimulate frequent importations from Italy and Cyprus, and thus hope to compensate in part for what will be lost by hasty, careless, and indiscriminate breeding.

Professor Cook was awarded a special vote of thanks for his important and valuable experiments.

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

CYPRIAN BEES.

I hand you herewith copy of a letter just received from Cyprus:—

'Larnaca, Dec. 3, 1879.

'I am at last arrived here after a long journey by way of Jerusalem and the Holy Land. The six hives I have purchased are in good order, and the bees do not seem very different to Italians. They are apparently a trifle smaller, and have a yellow abdomen, whereas with pure Italian bees that part is black. Still I know these are pure Cyprians, and I have specially come here to fetch them. To-morrow I shall drive the bees, and have a look at the queens. All information you shall have on my return.'

The bees referred to in the above are destined for Italy, where if they arrive safely they will be used to improve the native breed. The Cyprian queen now in the possession of the British Bee-keepers' Association is equal in purity and superior in some other respects to any that can be obtained from Cyprus direct, and I have not therefore taken advantage of an offer of one of the above.—J. P. Jackson.

CYPRIAN BEES.

Allow me to make some remarks in regard of Mr. J. P. Jackson's article in your *Journal* for December, 1879, p. 164. Of course Mr. Jackson is very mistaken if he says our friend Cory at Bruex, Austria, is the original discoverer and importer of the Cyprian bees. That honour is due only and alone to the Count Kolowrat Krokorvsky at Hroby, near Teplitz, Bohemia. This noble count has invested much money to get this species of bees. The first colony was totally ruined on the journey, and only the second and third arrived in good condition at Hroby. As the Count did not like to sell any of the queens he reared, he gave his friend Cory his surplus queens, but never one of the two imported queens. Cory alone sold Cyprian queens, and never did the Count do so, but Count Kolowrat would furnish Cory with pure Cyprian queens if the latter was not able to sell one from his own stock. Cory never said he did import Cyprian bees. Tested Cyprian queens has friend Cory sold, and the noble count has given them away as presents to many a bee-keeper all over Germany. I myself have received from the latter some very beautiful Cyprian queens; and why should not I and other German bee-keepers rear pure Cyprian queens, and sell them even to English bee-keepers? I cannot see any reason why not.

But I do not doubt that Cory is a worthy man, and has sent Mr. Jackson a pure Cyprian queen, and the best one he had too; though I am obliged to confess, that I have seen in our country, if not finer, at least just as beautiful Cyprian bees as Mr. Jackson's at the Kensington Show. Should that not be a proof that other bee-keepers may have as well pure and fine Cyprian bees as friend Cory and the Count Kolowrat, and that one may as well import such queens from other sources as from both the latter?—C. F. H. Gravenhorst, *Brunswick, Germany.*

BEE-HOUSES.

I was pleased to see the matter of 'bee-houses' brought forward in your last issue, as I think very much may be said in their favour. I would first make a few remarks on the objections to them contained in your 'note'—first, you say 'They are expensive to build or purchase,' this, of course, has nothing to do with the *merits* of the case, and is no objection to the thing itself if people like to incur the expense. Your next objection, 'That too many bees are apt to be crowded into them, so that the manipulation of one would disturb the others:' I do not think it worth much, as you would hardly require a hammer in the process; and if the bees are so placed as not to see what is going on, little notice would be taken by them. As to 'queens mistaking their hives,' this, I think, requires proof. Your next objection, 'They harbour vermin,' would apply equally (if not more) to the covers of separate hives; and as to 'robbing and fighting,' my experience is that it matters not whether they are near together or far apart, if bees are too weak to defend their home they are sure to be robbed. Next you say, 'Bee-houses are unsaleable;' but this objection would fall to the ground if their use were encouraged. Now a few words as to their value. The *appearance* of a bee-house (which may be made ornamental) is certainly far better than having hives all over the garden, so is the *convenience*. I know many gardeners who cannot go near bees; and if they are all over the garden it gets neglected; besides, having the line of flight in one direction greatly diminishes the risk of stings, and the pleasure of watching them is considerably enhanced by having

them together, and so as not to suffer molestation. Once more, they can be placed in the shade, which I consider most important. I have used bee-houses for about forty years with very much pleasure, no inconvenience, and no little profit, and have often felt hurt at your absolute and unsparing denunciation of them.

I would have sent an ornamental bee-shed to some of the bee-shows, but looked in vain for a 'class' in which I could enter it.—J. SADLER, *Sonning, Reading, Dec. 16th.*

BEE HOUSES.

I have a bee-house, and mine is not a very happy experience. All I can say in their favour (in my case) is that I am enabled to keep six hives, whereas without it I could only keep two, but at the expense of crowding and other inconveniences, which I find out when I have to examine or manipulate any of the hives.

When I began bee-keeping, some six years since, I obtained one of Messrs. Neighbour's catalogues, in which they have illustrated some forms of bee-houses. My garden being only 18 feet wide, I concluded that a bee-house would be just the thing. So I built one something like one of the illustrations, divided, to hold six instead of twelve, as shown, but with this difference in construction,—that its front and back are moveable; consequently, in summer it is quite open. This answered very well during the time I had straw hives, Neighbour's Improved Cottage; and there appeared to be plenty of room; but I was deceived in a very unpleasant manner, thus: A swarm went off from one of the hives on the bottom row. The queen must have fallen by the way; the swarm returned; but went into the wrong hive. You may imagine the result, for a few days after bees could be swept up by handfuls. I lost the swarm, and likewise a swarm that was expected from the hive that the returning bees invaded. Since I have done away with Neighbour's hives, and adopted the bar-frame (Woodbury), I find very great inconvenience in executing any operation with hives in the bee-house. Even had I only four (two top, two below) instead of six in the house, there would still be the same trouble, and I certainly would not have another bee-house.

I find the more simple stands are the better. One stand on which I keep three hives I made very cheaply. I obtained from the grocer three empty raisin-boxes all same size, nailed them together securely, filled them with earth, and nailed on lids; placed them in a row (12 feet from out to out). I then obtained two 12 feet boards (9 by $\frac{3}{4}$), nailed battens across at ends and centre to keep them together, and laid them on the boxes of earth; about two nails through them into the boxes to keep them from being moved. This stand has been in use for about four years, and will certainly last four more. I prefer it to single stands, for it is more convenient to place anything about that you may require in any operation.—*Lower Fant Road, Maidstone, Dec. 10, 1879.*

P.S.—If I had not built my own bee-house, I should have bought one of those mentioned at from 15*l.* to 19*l.*

BEE-HOUSES.

I enclose my subscription to your valuable *Journal* for another year, and also my experience with bee-houses. I have kept bees in houses for nearly a quarter of a century, and they have always done very well. They are never too warm in summer. I have them well ventilated at the top. The hives keep so nice and dry in winter, and they are so convenient for manipulation. I get more honey (supers) from them than I get from any other hive in my garden. My hives are all made of yellow pine. I use bar-frame hives—length, 21 inches; width, 12 inches; and $9\frac{1}{2}$ inches deep. Dimensions of my houses are 7 feet long, $4\frac{1}{2}$ feet wide, and $7\frac{1}{2}$ feet high in the centre, with sloping roofs towards the sides. The front of the houses is painted green. Each hive has its own alighting-board. Above each hive-entrance a different colour is painted. They have three windows in front, panes of glass which slide up and down, they are useful for letting bees out when they chance to get inside.—WILLIAM RUSSELL, *Pettinain Village, Lanarkshire.*

BEE-STINGS: A CURE FOR GOUT AND RHEUMATISM.

The *Courier de l'Allier* reports the following, for which we leave them responsible:—

'Of late numerous therapeutic remedies for rheumatism have been cried up as being very efficacious, but just now has been discovered, by chance, another remedy,—curious enough certainly; but which gives, we are assured, marvellous results. It is to combat rheumatism by means of bee-stings; and, lest we should be charged with flying into the regions of fancy, we reproduce the following account from the *Gazette d'Augsbourg*:—

'A child, nine years of age, Madeleine Kulm, has just been cured in the same manner of an almost complete paralysis. After trying every treatment, her physician recommended her to have recourse to that; an amelioration manifested itself immediately after the first stings; and the cure was so promptly effected by the use of this remedy, that the poor child can now run and play with other children of her age.

'A speculative bee-keeper might assuredly amass a large fortune, very promptly, by establishing a hospital for the cure of gout and rheumatism by means of bee-stings.'—*Memorial d'Amiens.*

GOLD IN BEESWAX.

I have to thank you for the 'heading' to my short note in your *Journal* for last month, as adding zest to the subject. I can only assure you and your readers that the precious metal abounds in wax, for I made it my business to purchase the same in many different quarters, and always met with the same good result. I may add that I have found gold in the ashes of many flowers, and that, in some instances, the *tiny* grains may be discerned on the leaves with the naked eye.

To procure gold from wax.—Heat a pipkin very

hot to inflame a piece of it, then remove from the fire, and keep adding small pieces only at a time, until you have burnt a pound. Scrape the pipkin well when cold, and burn the ash in a small melting-pot, with carbonate potassa five parts, carbonate soda four parts, as a flux.

2. The metal may be parted by electricity.

3. Melt, add brimstone, and calcine.

4. Envelope the wax in tinfoil, bury it in salt in a crucible, and heat strongly.—JAMES BRUCE, *15th December*.

HUMBLE BEES.

In response to an inquirer concerning the humble bee in a recent issue of your *Bee Journal*, I beg leave to tender the little information I possess of this race of bees. I have twice secured a swarm, and a very strong one I got last year from underneath a boarded floor. I placed the nest on a square board and a skep over it; it increased to a strong stock: but the great difficulty of making any practical observation was in the peculiar formation of the cells, which are built one above the other, and not downward as in the case of the honey-bee. The shape of the piece of comb was half round on a flat base, and covered over with very fine fibres of grass, very similar to the nest of the field-mouse. In this were various passages, and often, upon lifting the skep, the inmates would come out with a tremendous buzz, much to the alarm of my visitors, who generally bolted at once upon hearing the formidable hum, in fact, the noise was most alarming, but it generally ended in noise only. One peculiarity was the nest, it was always swarming with a small louse-like insect of a light-brown colour, and they evidently performed the work of scavengers to the hive, for whenever it was filthy dirty from some internal cause, and if the bees were confined by strees of weather the nest became very wet, then were those small parasites most busy, and upon it becoming dry and wholesome very few were to be seen. I was never fortunate enough to see the queen, although twice I pulled the comb in two for the purpose; but there were some magnificent drones, and well they looked, with their black and gold bands, and bodies about an inch long, those were the gentlemen who made all the noise (not like those little terriers of Italians who sting first and bark afterwards). It was most interesting to see them remodel their nest after being disturbed. Now there was never much honey, but what there was had a most peculiar flavour of white nettles, yet I expect this would be the result of the particular flowers it was gathered from, rather than a peculiarity of the bee. The most strange part of the behaviour of those bees occurred in the autumn, when both hives were deserted just before the cold weather set in, the small parasites were also gone, a little honey, but no grubs left. With those meagre remarks I must close my stock of knowledge. Perhaps our worthy editor will favour us with his views, if convenient, in some early number, of the habits and qualities of the 'Dizzey' bees (Cyprian). A short account of the Carniolians would be also interesting at this season.—W. CRISP.

ARTIFICIAL HEAT—TOP ENTRANCES.

In the spring of this year I sent you a description of two hives I had been making, with entrance on the top, which appeared correctly in the May number of the *Journal*, with the exception of the word 'dust' on floor-board, which should have been *dirt*. I also mentioned how the bees had wintered in them. It was part of my original design in making these boxes to provide for the introduction of artificial heat, with a view to promote earlier breeding.

I have not the May number by me now, but I believe I described the hives something in this way: 'The floor-board draws out between the legs, and a drawer is made to take its place; and the drawers to each intended to put frames in if necessary in summer, or hot water in early spring'; and as this has been carried out, I give you the result, for I see the question of introducing artificial heat is being entertained.

In the first week in March the floor-board was withdrawn from a hive marked No. 1, which at the time was the weaker of the two. The drawer was introduced in its place, working in the same rabbets; and to prevent the bees going into the drawer, perforated zinc was fixed on the top of it. One end of the drawer was moveable, and a stone bottle holding a quart was filled with hot water, and put into it though the moveable end. Every night and morning the bottles were put into a bag to confine the heat a little, and a very short space of time was needed to change them. I supplied the bees with about 1½ pints of syrup in ten days, and it was amusing to see the excitement caused the first few days when the hot bottle was introduced. They evidently thought summer was come all at once; but afterwards they took little notice of it, but began the well-known hum so gratifying to hear.

The 3rd of April was a remarkably fine day when I witnessed the first flight of, I should suppose, hundreds of young bees. The 14th was much cooler; and though all the hives were working, quite five times as many bees entered this hive as any of the others, and it was evident they were taking a longer flight to some osiers growing a quarter of a mile away, from the quantity of pollen they were carrying in. I continued the water bottle till the middle of May, when I found they had stopped up the perforated zinc, so I then discontinued it, the hive being quite full of bees, and ready to swarm. I put two sections at the back, opened communication, and the bees soon went into them. There was a little bit of comb in each section, but the weather wretched. 1st of June drones appeared, and bees began to work in sections; 4th, some honey was deposited; 20th, they swarmed. When they had swarmed, I found the queen had been in sections, some brood was in then, and also a little sealed honey. From what I have written, I think you may safely say that artificial heat, properly applied in early spring, will have a good effect in promoting early breeding; but food should be supplied at same time in small quantities. The other box, marked No. 2, to which artificial heat was not

applied, did not swarm till 3rd of July; and though the sections were filled with bees, they did not work in them.

There has been enough said about the last season, and I would say 1860 might be compared with it. I don't think my bees had then honey to commence the winter with, and that was something like this, severe, with a good deal of snow.

But, for some encouragement, I would tell beginners that the four or five following years were everything that could be wished for. In 1861 I purchased my first bar-frame hive, when I set to work and made some more; and I want to say to all beginners, 'Every man his own hive-maker.' It is not much trouble to alter them if they don't please you.—P., *Warwick.*

HIVE VENTILATION.—WINTERING.

I do not know how far you may care to continue our discussion, but though I agree with and admit all you say in your note, I cannot see that it disproves what I have advanced regarding the escape of heat round the ends of frames.

The reason why our breath condenses on the windows is that the moisture contained in the warmer atmosphere of a room is condensed as soon as it touches the glass which is kept cold by the colder air outside the house, not because it is colder near the window than in the centre of the room. Put a pane of glass a foot off the window inside the room, and nothing will congeal on it. For the same reason clouds are seen to roll up hill-sides. The moisture contained in the air is condensed as soon as it touches the cold hill-sides, and forms what we call clouds or mist; and for the same reason the moisture generated in a hive will congeal on the walls, unless it is got rid of by upward ventilation, or otherwise; if is not sufficiently cold, it will remain in the hive in a state of moisture. It is quite true that in the centre of a group of bees the temperature will be higher than in the remotest part of the hive, but it seems to me that the only practical way of retaining this warmth round the bees, is to contract the space they occupy by a partition to as small a space as will hold them comfortably with sufficient food. In a skep hive without frames, the ends of the combs are not entirely closed, and we all make holes through our combs for the bees to pass. To follow out your idea would be to make each comb a separate compartment of the hive, which to me seems practically out of the question.—G. F. Pearson.

[Our esteemed correspondent has signified in the latter part of his letter the exact conditions which we think should exist in all hives in which the comfort of the bees is the chief consideration, as it essentially is for the purposes of safe wintering. We have all along put forward the condition of a hive, *i.e.* a bee-nest, as the bees themselves fashion it, as the best model for imitation, and there can be no mistake in their proceedings, for they have learned their principles of construction from the Omnipotent, the All-wise, the Great Architect of the universe, whom we too often with thoughtless levity allude to as 'Nature.' Further observations will be found in our article on Hive Construction.—Ed.]

BEE-KEEPING IN CALIFORNIA.

I observe in the *B. B. Journal* (of which I am an appreciative reader) a notice of a gentleman who wishes to get information regarding a location for bee-keeping. As you will perceive from my address that I am in the south of California, about 120 miles from San Diego; between Ventura and San Diego is considered the best honey region in the state, both for quantity and quality. My experience in thispart is little, only having been one year, and that a poor one: bees have done just as much as keep themselves, and where there has been bad management they have been lost. The crop of 1878 was very good, although the bees as a rule were weak in the spring: for instance, two adjoining apiaries of 178 and 200 hives in the spring increased to 300 and 350, by dividing and putting back all swarms, made 70,000 lbs. and 60,000 lbs. respectively, extracted of course. We are in what is called the White Sage baits, which produces the finest in the market. We have no trouble in wintering our bees, the supers are seldom taken off till spring. The bees gather less or more honey all the year round. Our fittings cost us little when compared with England. Hives (Aubel) complete cost one dollar Langstroth hive. I shall be glad to answer any question you may ask. It is only five years since I left Scotland, and it would be pleasing to us if you were coming to this part of the world. I take a great interest in the *B. B. J.*, and all that concerns the native land.—Robert Strathearn, *Caledonia Apiary, Randolph Springs, Santa Paula, Ventura Co., California.*

BEE INCUBATOR.

Dear readers, 'Go to Jericho,' *i.e.* if you would like to see a novel Bee-Incubator heated by gas. And if you would, moreover, like to see a queen with a body like the caudal appendage of a rattlesnake, just look at Professor A. J. Cook's 'Frontisplate' as he calls it.—Raven, Jun.

ARTIFICIAL COMB.

During the year 1876 I corresponded with several firms as to the possibility of producing artificial comb. Only one would entertain the idea, and Mr. J. L. Hancock, of the Vulcanized India Rubber Works, Goswell Mews, London, made for me the enclosed specimen, more as an experiment to ascertain how the bees would behave towards a thing of the kind than with any idea that such hand-made artificial comb could ever supersede the real article. It is formed of short cylindrical tubes of India-rubber sheeting, placed side by side, with a slight upward slope on each side of a piece of canvas or stout calico, and cemented to it, though not to each other except at bottom. Hence a small space was left between every three cells, as must always be the case where cylinders are placed side by side, and there were six of these spaces round each cell. On receiving it I saw at once that the cells were too small, the thickness of the wall not having been allowed for in the making; but I fixed it in a section, and inserted it in the centre of a

sectional super then in process of being filled, to see what the bees would do to it.

The cells were so small that the bees were unable to get their heads into them, but they nibbled the edges a good deal, and filled up, I suppose with propolis, every crevice and the spaces above referred to between every three cells; and this propolis, contracting as it dried, drew outwards the walls of the cells towards the six spaces around each cell, the top of the cells (the only part the bees could reach) thus becoming hexagonal instead of cylindrical. Some of the cells, owing to faulty construction, are, as you will see, not regular in shape, but there are a great many tolerably perfect hexagons.

I confess, Mr. Editor, that when I saw that the cylindrical had been thus transformed by bee-agency into the hexagonal, I was much inclined to think I had accidentally stumbled upon the solution of the vexed question of how bees make hexagonal cells; but, having failed to work out any theory which would be applicable to the normal proceedings of bees when building comb, I send this note in order, with your permission, to place on record what I am reluctantly compelled to consider only a curious coincidence.—H. JENNER FUST, JUN., *Hill, Falfield, Gloucestershire.*—Dec. 18, 1879.

[We duly received the comb, five inches by two, and it is exactly as described. The bees have built a piece of natural comb under it, using it as their guide.—ED.]

ONE OF THE AUTHORITIES.

The following letter is from an 'authority' in bee-keeping. We publish it *verbatim et literatim*, as a curiosity, in the interests of the science, and because hereafter it will have historical value. The promised 'Treatise of the Experimental Practice on Bee-Culture,' will doubtless be of equal value.—ED. *B.B.J.*

DEAR SIR,—As I generally at this season of the year make a practice of Writing to most of my Bee Keeping Friends, under an Idea of such who like myself take a great delight in devoting a good share of their Leizure time in endeavouring to get and give all Information that might be promoted to the Welfare of Bee Keeping, I therefore, under these Ideas, have taken it upon myself to write to you on that Subject, and shall pleased in having the pleasure of receiving a reply, with any other remarks you may see good to state, either in the past or the future of your Experience on the practical movements of Bee Keeping; presuming you will do so, I therefore, in advance, will now give you an Idea as to what we have had to contend with from the result of a Cold Wet Summer. Well, I never knew so few Swarms produced, and such as was produced both late and not so good as many of the casts in bygone favourable Seasons, So that the consequence was, the last Autumn in this my district, in this part of Lincolnshire, where we took of condemned Stocks many Hundreds, we did not take Twenty to the Hundred. Something else I found—that on the average there was not a fourth of Weight of Honey there as been usually got, nor Half the Weight of Bees. And many had not the least partical of Brood left in them. After Driving found this to be the result. So that I fear the great trial is to be found this next spring; what with so few latter Brood been Hatched out, and what there is, to have so little to Sustain them through the Winter, it will be a fearful look-out, as from what I have gone through on the examination of such, left for wintering, was unusually weak of Bees, and poorly fitted with food to keep them through the Winter, Although to all within my reach round my circuit, I most strongly recommended them to feed Copiously, and that in good time in the Autumn, and to strictly pay attention to them in the spring; and yet, after all, I am of opinion they will be the greatest failure amongst them in memory of man Generally. As to the Ligurians, the Season was so bad, and put on such a Gloomy prospect in future, so that but little was done by Heading Stocks with Imported Queens. So that if the Lord spares us to see the Spring, I shall require some, and perhaps it may not be out of course by asking you a few questions, as you have had a good share of practice, and will have good Ideas as to where such, in confidence, can be obtained, with about the Value next spring.

I have likewise compiled a Small Treatise of the Experimental practice on Bee Culture, which expect the same to be obtained by the Public for a Trifling Value, having just now got a note from the Proprietor of the *Bazaar Exchange and Mart*, that they Intend sending me the proof of the same shortly: such contains my Honeycomb Glass Shades, which was demanded last Season so that I had not one left, But Intend having a Stock made for spring Service. Well, now, Sir, hope you with me will give your Opinion as to anything as touching any discoveries of Improvements that is or can be made to promote the welfare of Bee Keeping on the Humane principals of Management, of which we can, as an Open Market, Ask each other, and then give to it all it is worth, and if not counted of any Value, pass on to something else. One thing I often look at, and that is the Stock Hives, which upon carefully examining the Combs in such Order to suit the purposes of the pervilion of Nature, for the Bees' Breeding purposes, finding from centre the Brood Combs, and from Side to Side Eachway Combs made and prepared for to nourish and mature in Strength so soon as Hatched out by Attaching themselves to the Combs nearest to the Birth Combs, finding Pollen Bread and a portion of Honey to sustain and Strengthen them for the flight; and then the Combs further each way, which are well nigh filled with drones, which are a Hot-Body, and keeps the heat up, not only to mature the Brood, but to admit of a Vast Larger number of the Working Bees going abroad to fetch Honey and Pollen, according to the requirements, so that I cannot see the Advantage of interfering with the Seat of nature, which is and often has been done. But rather, on the contrary, would think of assisting them all I could to promote their welfare in Breeding than retard them in that progress by deranging the Combs or taking away Honey from that Quater at any time, except it was to demolish the whole. I consider that as there is no need of having an Empty Cask to take the overflow of the full one until it is full, nor is any surplus Honey to be expected to be Obtained by Capes, Glasses, or any other recepticle until the Hive is full of Bees in all stages of Action, so that the Queen becomes restless, finding no more Vacant Cells to deposit her Eggs, so that all is disorganised, and out comes the Swarm. Perhaps I may have taken to great a liberty in writing such a long Epistle, if so, pardon me, and favour me with a portion of your Experience, and if required, will write further at another time, if opinion is desirable.—*December* 13, 1879.

OBSERVATIONS ON BEES.

(BY A LADY BEE-KEEPER.)

What do you think? Would a very small band of zinc inside my hive have any bad consequence for the little sensitive bee?* From

* We object to metal in hives for any purpose in cold weather, particularly when used as runners for frames to rest or slide upon, for, being in the coldest part, it causes condensation, and, when zinc is used, is likely to be poisonous.—ED.

close observation of my bees now I feel persuaded that their little coating of fur is doubly as thick as two months ago. I suppose, like animals and birds, it is increased for their warmth. Being on my balcony, I have opportunities of observing them, and their manners are very curious—they change with our months. This is the second autumn that I have had them. On the 2nd of October they acted most tenderly. One bee kept in continual motion on the landing-board fluttering its wings and running up to every bee that came, never going in or going away. Up to that day, as the weather might be, the bees were out more or less. I said to my daughter, 'That bee is telling them all winter has come and they must remain at home.' Once was enough. Next day all was quiet, not one on the landing-board, a few quietly in and out; so it has continued. I fed them to-day. They took some of the food not eagerly; and very early in the day they shut themselves in. The end of this month there will be another whispering, and then they won't touch syrup. I am persuaded that, however easily done, it is a very bad thing to touch the slides, even to look at them, especially at this season unless to deprive them.

* * * *

I thank you for your letter. I quite know the shortness of working-bee life, and the rubbing off the fur by every-day work. I think, however, that they are given an increased quantity at this season, and they look so well and bustling just now and proportionably vicious. I don't touch them, and shall not raise the slides; and have not since August. I am convinced they have ample, and like last year, I am (during this month, October) giving them one pint of syrup a-day.—I believe my hive to be admirable—an improved Italian hive, thoroughly warm and comfortable. Imperceptibly ventilated on the top, and yet every morning and afternoon there are several large drops of condensed steam on a baize quilt. They seem in thorough condition for the winter. I doubt if we should care much for these very wonderful little insects, were it not for the luxury we derive from them and the utility of the honey in medicine. Bees are murderers, robbers, and gluttons, very vicious, except when quieted, which, from observation I say, is most pernicious, and a great loss to the bee-keeper. So I am persuaded is looking at the slides; every time they are drawn up some little bee-work is destroyed. You are the first bee-master in England, and there is a point I should like to name to you—can you call your bees home? It was done in ancient times (I have it on good authority); very, very long ago; and it is remarkable that, at the present day in Italy, the same noise or word is used to call any one back.* This is a fact as regards the bees, and I shall be happy any time to show you where my information is derived from. It would be something new in your *Journal*, and set all the bee-masters to work training their bees. Not particularly useful, but very curious, more so than their eating the flesh of a dead bird, of which I am quite sure, and which is someway borne out in Scripture by the bees in the lion.† About a month ago I sent a friend of mine to see your premises. She drove out there with a gentleman, she was much pleased, and will, I believe, get one of your observatory hives. She tells me that you are persuaded that bees do not see.‡ Will you pardon me if I differ with so great a bee-keeper? In my small way, I am persuaded that they do see right well. Many different circumstances show it. One of the simplest and plainest are the flies. I have a landing-board (on a slight incline) of considerable length; during the hard-working season they hardly notice the flies, but now they charge them from a considerable distance, even the smallest flies are run at. When the large flies are too troublesome they fly straight down close to them, and with a flip of their wing passing, they make them depart. I am about establishing a drawing-room hive, a complete and perfect hive, in every way, for supering and every manœuvre with bees,—and perfect observation. I could have bees now, but I think I shall wait until May.—J. M. Hall, *Notting Hill, W., October* 15, 1879.

* We have no knowledge of the means of calling bees home, but should be very greatly obliged, and we are sure it would be a boon to bee-keepers if the method employed were made known. It, if a word, would form a capital *open sesame* to a bee-keepers' guild.—Ed.

† The idea of bees consuming flesh has often been ridiculed; but our fair correspondent puts the question beyond dispute; so we will try it, on the presumption that they will take nitrogenous food in any form when they need it, as they must in this pollenless year if at all during the winter. —Ed.

‡ We do not know what we could have said to create this idea, unless it was in reference to bees coming home when laden to hives that have been moved, and alighting at the spot where the entrance *was*, as if they could not see that it was only an inch or two to the right or left. Or we may have mentioned the fact that bees act as if they could not *see* through glass.—Ed.

BEE-KEEPING AMONG THE ANTIENTS.

COLUMELLA.

Chapter III.

Of the several kinds of Bees, and which of them is the Best.

Wherefore let us return to those things which are more proper for them who have bee-hives under their care and management. *Aristotle*, the founder of the *Peripatetic* sect, in those books which he wrote of animals, shows, that there are several kinds of bees, or of swarms of bees, and that some of those swarms have bees that are exceedingly large, but round and compact, and the same black and shaggy; others lesser indeed, but equally round, and of a dusky colour, with horrid grisly hair; and others of a smaller size, but not so round, but nevertheless fat and broad, and of a somewhat better colour; and they have some that are very small and slender, with the trunk of their belly sharp and drawing to a point—of divers colours, somewhat shining like gold, light and nimble. And *Virgil*, following his authority, approves most of such as are very small, oblong, smooth and nimble, bright and shining:

'Whose bodies, mark'd with pairs of spots like drops
Of liquid gold, a dazzling lustre cast.'

Of gentle and mild disposition, for by how much the greater, and rounder also, the bee is, by so much the worse it is; but if it be of a more fierce and cruel

temper, it is by much the worst of all. But, nevertheless, the angry disposition of bees of a better character is easily mitigated and softened by the continual intervention of those who take care of the bee-hives, for they grow quickly tame when they are often handled, and endure for ten years if they are carefully managed; nor can any swarm of bees exceed this age, although they yearly substitute young ones in the room of those that are dead, for in the tenth year almost the whole family that lives together in one hive is consumed and reduced to utter destruction. Therefore, lest that should be the case of the whole apiary, a new race must be constantly propagated; and in the spring you must carefully observe when the new swarms issue forth in great numbers, that they may be received, and the number of their dwelling-houses increased, for they are often seized with diseases. After what manner the same must be cured shall be declared in its proper place.

Chapter IV.

Of the Pastures Proper for Bees, and what sort of Situation the same ought to have.

In the meanwhile, having made choice of bees according to the marks we have now mentioned, you ought to destinate proper places for them to gather their food, and let them be the most retired that can be had; and, as our *Maro* directs, void of cattle, and in such a situation as is exposed to the sun and sheltered from stormy weather.

> 'Where winds have no access, for winds impede
> Their course, when with their food they're homeward bound;
> Where neither sheep nor frisking kids insult
> The flowers, nor heifers, rambling o'er the fields,
> Shake off the dew and crush the rising herb.'

Let the same quarter be also abundantly productive of small shrubs, and especially of thyme or bastard marjoram; as also of thymbra, or Greek savory, or our own *Italian* savory, which the country people call *fatureia*. After these, let there be abundance of shrubs of a greater growth, as rosemary and the *cytisus*, or shrub trefoil of both sorts, for there is one sort of it that is sown or planted, and another sort which grows of its own accord; and likewise the evergreen pine and the lesser evergreen oak, for the taller one is disapproved by all: ivy-trees also are received, not for their goodness, but because they yield very much honey: but the most approved trees are the bright red and white jujube tree; likewise the *amaranth*, as also walnut-trees, peach-trees, and pear-trees: in a word, the greatest part of pomiferous trees, that I may not insist upon each of them: but of forest, or wild trees, the most suitable and convenient for them are the mast-bearing red oaks; as also the turpentine-tree and the mastich-tree—which is not unlike to this—and the sweet-smelling cedar; but of all, the lime, or linden-trees, alone are hurtful to them: yew-trees are intirely rejected. Moreover, a thousand plants—which either spring up and flourish upon the uncultivated turf, or are cultivated and improved with the furrow—produce flowers exceedingly friendly to bees, as are the shrubs of the *amellus* in well-watered ground, brankeursine-stalks, the shank of the *asphodel*, or king's spear, the sword-like leaves of the daffodil. But the white lilies planted in the garden ridge make a bright appearance; nor are the white violets, or stock gilliflowers, inferior to these in beauty; also scarlet roses, with yellowish and purple violets, and likewise the sky-coloured hyacinth; also the *Corycian* and *Sicilian* saffron bulb is planted in order to give a colour and a flavour to the honey. Moreover, innumerable herbs of a baser character spring up both in cultivated and in pasture lands, which furnish and replenish the honey-combs with abundance of wax; as the *lapfunæa*, or common wild coleworts, and, which is not more precious than these, the wild radish; and the *charlock*, or wild mustard pot-herbs, and the flowers of wild endive and black poppy; also the wild parsnip, and the cultivated one of the same name, which the *Greeks* call *staphylinon*. But of all these I have mentioned, and of those which I have omitted, endeavouring to save time (for their number could not be reckoned up), thyme gives the most exquisite taste to honey: then the next is *thymbra*, or *Greek* savory, and mother of *thyme;* of the third sort, but yet exceedingly good, is rosemary and our own Italian savory, which I call *fatureia*. Then tamarisk and jujeb flowers, and the other kinds of food which we have proposed are of middling taste. But of all, wood honey (which cometh of the broom-tree and the strawberry-tree, and the manor-house honey also, which breeds in pot-herbs, and in herbs that grow in dunghills, are reckoned of the very worst character. And since I have described the situation of their pastures, and also their several sorts of food, I shall now speak of the receptacles of the swarms and of their little dwelling-houses.

(*To be continued.*)

Lengthened Sweetness Long Drawn Out.—It has been found by experiment that 125 heads of clover yield about one grain of sugar, and 125,000 heads would therefore yield 1 kilo, say 2¼ pounds. Each head of clover bears about 60 florets, so that 7,500,000 distinct flower tubes have to be sucked in order to obtain 2¼ pounds of sugar. Honey consists of about 75 per cent of sugar, from which it may be calculated that bees must pay about 2,500,000 visits to clover flowers in order to collect 1 lb. of honey. Some flowers doubtless yield a larger quantity of honey than others, but the amount of work performed by bees in the collection of honey must be amazingly large.—*Whitaker's Almanac for* 1880.

Echoes from the Hives.

Market Rasen.—'Bees will be a great rarity here in the spring, as the cottagers cannot be persuaded to feed in the autumn.'

Gloucestershire, Dec. 5th, 1879.—'My bees are all comfortably asleep, each hive weighing from 25 to 30 lbs.; there are nine of them. Also I have bought eight more, and am proud of my village. It is ranged round my garden in the midst of strawberries, gooseberries, and currants, with more than one hundred fruit trees around, and abundance of bee flora also. I don't care to have my bees wandering far for their provisions. In the midst of my hives is one with a pointed top; this I call my church, standing as a church should, in the middle of the village. There are three hives of Ligurians, one a mixture of half black and half Ligurian, and they agree perfectly—a happy family. My stock-hive, of which I am particularly proud, weighed about 30 lbs. when the Ligurians first came—in a week, it was reduced to about 30 lbs.—it was easy to feed it up again; it is now about the former weight (30 lbs.), and is quietly left in peace.—M. B.'

Edinthorpe Rectory, North Walsham, Norwich, Dec. 18, 1879.—'I have never seen in any book on bees mention made of the destiny of the caps to the cells which the brood has left: that the worker bees gnaw* all round the caps, and so let the young bees escape, I have seen over and over again. I had for some three years in my workshop a hive with a window of the size of the hive end, and with frames running from side to side, and I watched for hours at a time the workers nibbling round the edge of the caps until they were eaten through, and so let the drones (the back comb was drone comb) walk leisurely out. I doubt whether the young have power to push off the cap themselves. Can anyone

* Hunter's 1st Edition gives it 'knaw.'

tell me anything about it? My bees are all alive at present, and I don't see many dead ones on the bottom boards. The first warm (!) day I shall clean all the bottom boards.'—J. LAWSON SISSON.

Nottingham, Dec. 26, 1879.—'Jack Frost has been the ruling power nearly all the month. December 1st brought a heavy snow-storm, which continued on the 2nd, and left us with a ground covering of three or four inches of snow. On the 6th the thermometer was several degrees below zero, showing the lowest temperature since 1860; and so frost and fog have ruled all the month except the 21st, 22nd, and 23rd. On the 22nd we had a beautiful spring-like day, mild as April, which made the birds sing and brought out the bees in hundreds. This gave bee-keepers an opportunity of overhauling their stocks. A neighbour of mine has lost two stocks from starvation on account of their not having been fed. Our hives are now again in frosty chains, the thermometer to-day (26th) showing a temperature of 16°, being 16° of frost.'—W. S.

Grantham, Dec. 28*th*.—'Yesterday a hard frost and the thermometer at 28°, not a bee moving of course. To-day warm and spring-like, and the thermometer at 49°, my garden alive with the merry hum of my bees. I am delighted to find all my stocks (thirteen) have stood the test of the late unusually severe weather. Some of the stocks are in straw, the others are in *Abbott's Cheap Hives*. With my usual chaff bag placed upon the quilts, I shall not fear bees dying from cold after their having survived such intense frosts as we have had this year. I hope all my brother bee-keepers may be able to record as satisfactory a fact. Wishing you, Mr. Editor, a happy and prosperous New Year.'—R. R. GODFREY.

NOTICES TO CORRESPONDENTS & INQUIRERS.

BRIDGE OF TILT.—It will be quite fair to conclude that the queen is unmated, even if present, when drones are permitted to exist at this late date. It is possible that they may be the off-spring of the young queen herself. The queen sent was a pure Ligurian imported from Switzerland.

T. N. T. S., *Swansea*.—Hives may be placed in pairs and threes without much danger of robbing or loss of queens, but it would be well to set the hives not less than a yard apart, with the entrances facing to different points of the compass. Each set of two or three should be not less than six yards apart, with a tree or shrub standing so as to break the uniformity and regularity which might render such arrangement fatal to the object in view. Economy of space being a studied feature in the arrangement, high and low stands might be used to vary the appearance of the line which might be a simple curve or serpentine as facilities offer. A straight line will do if the objects along it are varied so that the bees can readily mark the location of their hives.

COMBS ACROSS THE FRAMES (*Reading*).—It would be unwise to attempt to rectify them now, as it would disturb the bees too much, cause them to gorge themselves with honey, and might produce dysentery. It will be better to wait until spring, and then transfer all the combs, putting them straight and even into their respective frames. Transferring is better done after swarming has taken place, as recommended in the leaflet on that subject, free for 1*d*. stamp from our office, but may be done at any time when the weather is sufficiently fine to permit it, without injury to the bees. There are many operations that so much depend on the state of the weather, that no date can be fixed when it would be safe to perform them.

D. MCARTHUR (*Nevada, Dunedin, New Zealand*).—We have sent catalogue with other papers as requested. If you put yourself in communication with Mr. Frank Parish, care of Mr. J. E. Brown, Pakirikiri, Whakato, Poverty Bay, you will be able to get a pattern of our Extractor, than which for all ordinary purposes *we* do not know of a better. It sounds strange to us here to hear of your bees being about to swarm in the middle of November. The rain it raineth every day, and by the same rule, we suppose, the bees are swarming every day, somewhere!

WEST CROSS, SWANSEA (*Removing Bees, &c.*)—The safety of removal depends on the distance they will be taken. A hundred yards would be fairly safe, and if when put in their new position a branch off a tree be leaned against each entrance, the bees will be sure to mark the change of location.

FRONT OF HIVES.—Plant the space with Arabis alpinus, and in a year you will have it covered with a beautiful and valuable dwarf carpet of evergreen and early-blooming bee flowers, in which bees cannot well perish if they fall, and if you plant crocuses all over it, about six inches apart, they will come at same time, do no harm, and increase gorgeously the silver and gold on the pattern. Sawdust is very well for those with whom space is no object, and will do to go between the hive-stands, to tread upon, but we prefer cinder ashes, as they bind hard, permit little if any weed growth, and do not blow away; besides they are easily raked over for the destruction of casual weeds.

PERMANENT APIARY.—If about establishing a permanent apiary, we would advise that you plant a close hedge of Laurustinus, as an evergreen screen from wind storms, interspersed with almond trees, which will grow above them. A path, a yard or more wide, well dug out, and filled up with old brick rubbish, tins, broken crockery and glass, and anything that will give drainage, and be well out of the way; and on this spread ashes and crushed clinkers. Devote a yard in width to the bee-stands, putting ashes on each side, and a shrub-like tree (currant or gooseberry) between each, or each pair, for the hives may stand in pairs, and easy access on one side of each is sufficient. In front, trench the ground eighteen inches deep, burying the turf, so that the grass will not spring through, and plant it with Arabis a foot apart, and crocuses six inches each way between. Beyond that a belt of wall-flowers (autumn or self-sown bloom earliest), and if space can be spared, a belt of fruit trees, and outside that the fence. There are many trees that would be useful, the palm-willow, for instance, which likes a damp soil, and will do in the bottom of a ditch; the blackberry that will grow in a hedge; pyrus japonica, that will grow on a fence or wall, and indeed many other good honey and pollen-yielding bloomers, but the great point is to make sure (?) of a crop that will afford aid when scarcity ordinarily prevails.

THE PINK WRAPPER.—The coloured wrapper sent out with our *Journals* to-day will be the last with which we shall disfigure that periodical. In future, when a subscription has run out, an intimation thereof will be sent privately to the subscriber, and should he not feel that we deserve the encouragement payment in advance affords, we must hope that he will kindly order the *Journal* through his bookseller. The Editor of the 'AMERICAN BEE JOURNAL' says in his December number: 'We shall hereafter send no Journals unless paid for in advance. We should be glad to accommodate those who desire credit, but our losses are so large that we cannot afford it; having now about 10,000 dollars invested in such outstanding accounts.' He truly says: 'That which is a very small item to each one of a thousand, makes a very heavy load for one to bear.' This is precisely our position, and we respectfully beg of those who receive coloured *Journals* to-day, to bleach them forthwith by remitting the subscriptions due.—ED. *B.B.J.*

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THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 82. Vol. VII.] FEBRUARY, 1880. [Published Monthly.]

Editorial, Notices, &c.

FEBRUARY.

After the dreadful weather of 1879, the New Year opened most promisingly, for New Year's Day was both fine and mild, and the bees were remarkably busy clearing out their dead and the *débris* from their hives, and rearranging their quarters with a view to future comfort. An ounce or two of barley sugar gave them renewed vigour, and the sunny hours gave us the opportunity of clearing floor-boards, to aid the bees in their labour, and to warm into new life those that were nearly dead with cold, and which, but for our aid, would have been cast out to perish altogether. Brushing them (all the helpless) into a dish, and covering with a pane of glass, we had the pleasure of seeing many revive, and having given them a little syrup they were set at liberty, and returned to their hives, and thus many hundreds were preserved. The first four days of January were equally fine, and the bees active, and the fifth a charming day, so warm and sunny that in the absence of a fusee, we lit our bee-pipe by the sun with a small lens, a proceeding quite phenomenal in these days, and worthy of record.

Since then, excepting the 18th and 19th, until we write, there has been no sunshine, but the weather has been very cold, often bitterly so, with occasional rain and snow, confining the bees and rendering interference with them impracticable. Now, considering that bees are better for being inactive during the winter months, cold dull weather is a boon for which bee-keepers cannot well be too thankful, and in their interest we could hope it will continue, broken occasionally by mild intervals, until the crocuses are in bloom, when operations may with a hope of safety be commenced.

Being in correspondence with bee-keepers of all grades, in all parts of the kingdom, we are fairly well able to gauge the condition of bee-keeping and bee-culture in a general sense; and our report is, that notwithstanding the unfavourable conditions under which they have been carried on, those who keep their bees on improved principles as opposed to that of letting them alone, though they may not be able to boast truthfully of large profits, have few losses to deplore, whereas the 'let-alone' hobbyists are, as a class, simply ruined 'lock stock and barrel.' The bees have died of the preventible disease called starvation, whole districts being cleared of the suspicion of bee life, and left without the cheerful fertilizers of blossoms and flowers whose happy energy in distributing the various pollens tends so greatly to beautify the earth by floral hybridization.

It would be most useful and instructive if some return could be brought about of the respective fruit and seed crops in beeless districts, as, for comparison, with those in which bees are thriving and prosperous. The early crops, gooseberries and currants, and not seldom plums and cherry blossom while the weather is too frosty, wet, and cold, for insects other than bees to get abroad and help in the necessary work of fertilization, and where *they* have been allowed to starve and die out, we take it the prospect of heavy fruit crops will be considerably jeopardised. Their value in 'setting' the blossoms of fruits in orchard houses has been before discussed in this *Journal*, and we have several times been the means of providing bees for this special purpose, they being considered indispensable, though, we are sorry to add, scarcely thought worth preservation afterwards.

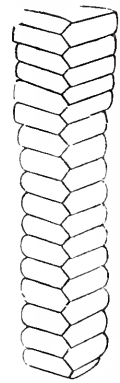
February, however, is here, and St. Valentine will presently announce his mission, and the birds (and other bipeds), and bees will begin to think of the future, and arrange their plans, and it would be well if bee-keepers could be induced to act with equal wisdom, that the future of their stocks might be provided for beforehand.

FOUL BROOD.

(*Continued from page* 176.)

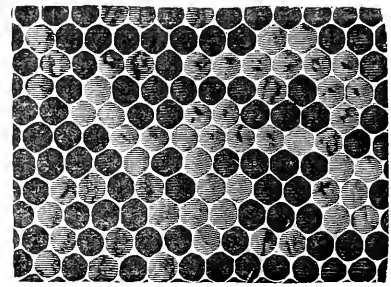
In former pages we have endeavoured to teach the inexperieneed how best to prevent the introduction of foul brood to their apiaries, and our present purpose is to show those afflicted with its presence the best means for its eradication from their hives, and we would fain add, render its reappearanee impossible. The latter, however, seems at first too large a proposition to be entertained, but if there are means by which its germs ean be destroyed or their growth rendered impossible, its extermination would not be a hopeless task if all bee-keepers would adopt them. That sueh means exist is indisputable, and that virulent disease ean be stamped out is patent, as in the case of the cattle plague once so grievous and alarming, but now unknown in our land: but, as before hinted, there being no law to insist on united action against foul brood, the probability of its utter eradication is somewhat doubtful. Nevertheless, although it is not within the power of a bee-keeper to absolutely prevent the advent of the disease, it is possible for him to arrest its progress and neutralize its dangerous charaeter. The first essential is constant watchfulness; we do not mean by this that hives are to be opened every day to look for evidenees of the disease, but whenever they are opened for any purpose the eombs should be earefully scanned, and every suspeeted eell investigated. The suspicious signs are flatness and eoncavity of the eell-caps, raggedness of the same with small holes of irregular shape at intervals amongst them. In some eases dead larvæ, yellow, and blackening may be observed lying in the unsealed cells; but these may be, and often are, the effeet of ehilling, and are not always the result of disease: they should, however, be treated as if they were, for it is possible they may in rotting ereate the eonditions favourable to its inroads.

Nor is it always safe to infer that flattened or sunken eell-caps are indicative of disease within, though their depressed condition may perhaps tend to ereate it by injuring the larvæ contained. Before our introduction of the moveable hive-sides or dummy-frames, as space makers, it was neeessary to erowd several frames together (as must even now be done where hives have not those facilities for manipulation), before any one of them could be lifted out of the hive, and thus the bees between the erowded frames were made to press against the eell-caps and destroy their eonvexity, and in hives in which, from laek of means to keep the frames the correet distanee apart, the same result is possible. Whether the flattening of the eell-caps is injurious or not we are not in a position to prove, but would advise that its occurrence be guarded against, that the normal condition of the eell and the position of the brood may not be interfered with. Foul brood gives forth a most unpleasant odour, whieh in a bad case may be detected many yards off; the natural odour of a healthy hive is sweet and pleasant, and when the contrary is perceptible the hive may be suspected, and should be examined. There are other reasons for suspeeting the presence of foul brood in hives, to wit, a dwindling population, seeming laziness on the part of the bees, want of 'heart,' dullness of appearanee, &c.; but most of these are compatible with queenlessness, and are no sure guide, and therefore we are compelled to advise that no relianee be plaeed upon anything short of actual observation. Foul brood in a hive, then, may be known by the broad eell-covers being flat or concave instead of slightly convex, as shown in the woodeut No. 1, which



No. 1.

represents a perpendieular section of brood-comb, minus the the brood, and by their being raggedly pierced, presenting on the surface of the eomb somewhat the appearanee exhibited in eut No. 2 (copied from a photograph); it may also be distinguished from ordinary dead brood by its fetid odour and putridness. Sealed brood that has died through having been deserted by the nurse bees during a cold 'snap,' is sometimes mistaken for foul brood; but if examined by unsealing the cells, much of the brood will be found perfect, though dead, whereas sealed foul brood will have become putrid before the eell-



No. 2.

covers have lost their rounded appearanee, and the filthy odour of their eontents will at onee settle the question.

Remedies in its Early Stage.—Having discovered the existence of the disease, the question, 'How to get rid of it?' would naturally arise; but to our mind the first consideration should be, 'What is the extent of it?' If it has only *just commenced*, it may be nipped in the bud, but, unfortunately, by the time it had begun *to show itself*, it may be too deeply seated to give way to half measures, and considering the risk incurred by temporising with the disease and the labour incurred, we very much question the policy of attempting its cure by salicylic acid as commonly recommended. We quite believe the doctrine that while wet the disease is not infectious, and that it can in that state be communicated only by actual contact, as in the giving infected honey or pollen to young brood, or by the germs being accidentally carried from cell to cell by the nurse (or other) bees, but who is to know how the disease first got into the hive? It might happen that one bee had brought home a load of honey from an infected source, and with it poisoned, say, a dozen of the brood; and if they were discovered, and the cells cut out, or the filthy matter removed from them, and the cells freely disinfected, the disease would stop, and the 'means of cure' would probably be published as infallible. On the other hand, if, as often happens, the disease is imported through the robbing out of an infected hive, who can say how deeply the evil may be seated? Instead of one drop of the poisonous honey, there will probably be several hundreds of cells filled with it, and it will have been fed to the larvæ for many days, sowing the seeds of destruction throughout the hive. The first discovery of a few diseased cells is no guide whatever; they are only the first evidences of its existence. There may be many hundreds of others infected that will not show themselves for days, or perhaps weeks, for the collapse of the cell-covers and their perforation do not take place immediately; and it may, therefore, as a rule, be taken for granted that ere foul brood is discovered, it is too deeply rooted in the hive to make an attempt at cure worth the time, labour, and expense involved in the uncertain issue. When a hive becomes affected with foul brood, it may be said to have met with a misfortune equal at least, if not greater, than befalls a hive that becomes queenless. If the queenlessness is discovered early, re-queening is an easy matter; but if not discovered until *late*, when the bees have grown old, the matter is much more difficult, and very often expensive and useless for profit. And with foul brood; in its earliest stage it may possibly be cured, but later 'the game is not worth the candle.' It seems easy to feed bees on salicylised food, and to cut out or spray the foul cells with the disinfectant, and to extract all the honey, and spray the combs, and if doing this once would suffice all would be well; but inasmuch as foul cells will be continually cropping up through earlier poisoning of the brood, it will be necessary to attend to them continually for several weeks, with the probability that some portion of the hive or combs has not been disinfected, and presently the disease will appear again, and be as troublesome as ever.

Our Convictions and Mode of Treatment.—We have had a long, wearisome, and expensive experience with the abominable disease, and have no fear of its inroads into our apiary, unless it be imported to the hives by our bees robbing those already infected by it, and feeding their brood on the poisonous honey thus obtained. We have no fear that the disease will 'break out' in any of our stocks unless dysentery first paves the way by creating a condition of hive congenial to the growth of its seeds or germs, and dysentery, by the use of the quilt in lieu of the close-fitting crown-board, and by careful attention to autumn feeding, we have tabooed from our list of probabilities. We once saw an advertisement, 'How to get rid of rats, send twelve stamps,' &c., &c., and the advice given was, 'Take care that they shall not find anything to live upon;' and that is our advice to those who want to get rid of the foul-brood disease. Stop the production of brood, and in a short time there will be nothing to do but to destroy the germs or seeds that are left behind, and that is an easy matter if the bee-keeper resolves to do it. The state of hives and the seasons may be so different as to demand variation of treatment; but common sense will dictate to those who know anything of bees where the variation should be applied, and in either case advice is easily sought, and may readily be obtained. Given a hive in spring, apparently flourishing, with plenty of bees and brood, but with evidences that the disease is killing the larvæ. We would make an artificial swarm from it, putting the swarm into a skep or box for a day or two while they consumed the honey they had with them, changing them afterwards into a permanent hive, combed or otherwise, as might be convenient. We would remove the foul hive to a remote corner, isolating it if possible, and would feed both it and the swarm with disinfecting syrup. We formerly used a solution of permanganate of potash (Condy's fluid), but salicylic acid is better as a disinfectant, as it does not so quickly lose its power. The outside of the foul hive we should sprinkle with carbolic acid, taking care that the upper strata of the quilt should be well dressed with it, for reasons that will be presently apparent, and that the entrance should have an odour of it to prevent foraging bees being tempted to

enter. Now the hive been queenless, it will be evident that in three weeks all the brood that could hatch out would have done so; and it is possible that a new queen may have hatched out also, though the chances are against her evolution under such circumstances. In the meantime, as opportunities offered, taking advantage of dull days or cool evenings, the diseased hive being isolated, might be examined, and the foul cells salicylised, a carbolic odour being kept up around it as a deterrent to foraging bees. It is probable also that we might make use of the hive as a nucleus in which to hatch out sealed queen-cells from other hives, as we have done very many times, leaving each young queen until she had deposited a few hundred eggs, and then putting her at the head of a colony. At every examination, the spraying with salicylic solution being continued, the lower strata of the quilt should be removed, and disinfected by immersion, and clean material substituted, while the upper strata should be carbolised afresh. By these means the germs of the disease would be rapidly killed, those in the cells and on the combs by the salicylic application, and those that ascended with the upward ventilation, by the carbolic acid, if not caught in the lower strata and destroyed by immersion. This mode of treatment gives the minimum of trouble and risk, saves and utilises all the bees, and there is only the probability of loss by the combs. If during the examinations any of the combs show that very much of the brood has died of the disease, common sense must direct whether they shall be removed and put (immediately, for there should be no delay) into the melting-pot, or whether they should be left on trial for a future batch of brood. The eggs that have been deposited from time to time by the young queens that have hatched from the sealed cells, will afford a test for the presence or absence of the seeds of the disease, and sufficient of them will probably hatch to keep up the strength of the nucleus, while the spraying, &c., will prevent the spread of the infection, and may, as we honestly affirm it has done with us, destroy the disease altogether, permitting the hive to recover its tone, strength, and value.

(To be continued.)

BEE-KEEPING AND FARMING.

(Continued from page 177.)

In recommending the practice of bee-keeping to farmers as an economical and well-paying pursuit, we hope they will believe that we do so with the honest conviction that it will be helpful to them in this their time of difficulty. We will not insult their common sense by suggesting it as a panacea for all the evils attending upon agriculture, or try to convince them that the profits arising from the industry are superlative, as is too commonly the fashion; but considering that in their ordinary vocation they produce honey abundantly which is now wasted, we do most sincerely commend it on the score of economy; and we trust our remarks will be read in the spirit of sober earnestness in which they are written. In England, bee-keeping is treated too much as a hobby, and too little as a business; its votaries talk, and write of it glibly enough as an interesting pursuit, and vaunt the wonderful results which have been occasionally achieved, and, filled with enthusiasm, made the hills resound with its praises, and their assurances that one has only to keep bees to become rapidly wealthy; and in faith of these reverberating assertions, thousands embark in the pursuit, and, failing to achieve the promised results, give it up in disgust, and in the future testify against it. Bee-keeping as a hobby is a very enticing amusement; its followers indulge in the luxury of bee palaces, elaborate and costly hives, and glittering appliances, with varied success in achieving the true object in bee-keeping, viz., a honey harvest; and it is no part of our duty, nor do we wish, to interfere with their pleasure, but we think it right to suggest that their experiences give no true index to the profit likely to attend the pursuit when carried on in a business way. Now, in considering the subject in this light, we do not feel warranted in saying that it would pay in this country to devote a farm, highly rented and taxed, as land is generally, to the production of bee produce only, by which we mean swarms of bees, honey, and wax, though there are localities in which, with a fair knowledge of bees and their management even that might be achieved; but taking the average of seasons we have every faith that bee-keeping in connexion with farming would pay, and be largely remunerative.* There is,

* Since the first part of this article appeared, we have been in communication, personally and by letter, with a gentleman whose experience during the past year, 'cruel' though it was, has so satisfied him that bee-keeping will pay on its own merits, that he is intending to establish a large bee-farm, to consist of several hundred hives. Last year his profits, after counting all costs, amounting to over 15 per cent. on his capital invested, and he has a firm belief, in which we entirely coincide, that such result is far below the average. His hives will be of the cheapest kind consistent with soundness and the comfort of the bees. We are preparing a model for his approval for home make, and should the verdict favour it, shall have great pleasure in giving it publicity. Our own experience as a most successful honey producer, &c., before we became 'public property,' convinces us of the soundness of the above conclusions. We were engaged from home in a public institution from 6.30 a.m. to 6.30 p.m., every day as a rule, yet with an average of forty stocks of bees, all in bar-frame hives, we made a profit of near a hundred pounds per annum, through the sale of swarms, stocks, and honey.—Ed.

however, one important consideration that must not be overlooked; there must be a fair understanding of the habits of bees, and the means of their management; without that the idea of their profitable culture is absurd. In a footnote we have mentioned our success as a bee-keeper only; we used hives of our own handmake, of unplaned pine, nailed together, which, though good enough for the bees, gave us none of the facilities at present attainable with no greater cost. With these manipulation was a labour the reverse of pleasant even to remember; and if success was then possible, how much more should it be so now when hive construction has been so much simplified, and a knowledge of bees and their management so easy to acquire? Every farmer knows the value of improved implements, but he knows that the possession of the most approved appliances is not all that is required; he must understand the nature of his business, and the times and seasons for doing the various works, or his implements will be but costly possessions, and not the means of profit they were intended to be.

With a good pattern hive on hand, an intending bee farmer might make, or cause to be made, say ten useful hives for 50*s.*, ten swarms of bees would probably cost at, say, 10*s.* each, five pounds more, and being able to secure a honey yield from the flowers of a seed-crop (whether of beans, rape, mustard, or clover, matters little), in addition to that obtained from orchards, and other surroundings, the bees ought to be able to establish themselves during the summer without further cost. But we will suppose the season to be an indifferent one in which the bees will require assistance, say 15 to 20 lbs. of syrup each (a high estimate), and that other costs incurred in providing for winter raise the outlay to an additional 5*s.* each, or a sum of ten pounds invested, interest on which at 5 per cent (for a whole year to make the worst of it) makes a total of ten guineas for the ten stocks of bees, including all costs, and no extra charge possible upon them save that for supervision by their owner, which, with so small a number, may be accounted *nil*, or balanced by the satisfaction he will find in their possession. Here then we have as an integer for calculation a stock of bees one year old for a guinea, a high figure from a business point of view, but a safe basis nevertheless, and one on which we are content to rest, our account being based on the assumption that the bee farmer will avoid the expensive services of a middleman, and eschew all that is fanciful.

In our anxiety to avoid what might appear as colouring to the picture, we have made no allusion to the chance of profit which good swarms may produce in a fair average year, but that they sometimes pay enormously is shown by the experience of Mr. F. Cheshire, of Acton, recorded in the *English Mechanic and World of Science*, p. 511, Vol. 16, where he says in respect of a swarm of bees with which as a private bee-keeper we supplied him:

'It arrived on April 28th. Wretched weather followed, when I "tickled not their nostrums with a feather," as Tom Hood says, but their palates with "soothing syrup," of which they had about 4 lbs. to keep them in heart and hope till brighter times. As soon as fine weather returned, not wishing to pauperise the little community, I left them to shift for themselves. It was not long before the hive was well filled, and they seemed to have an emigration scheme in contemplation, which, however, was given up in consequence of some rising young bees, soon after I had placed on a Woodbury super, discovering that their house had a story more than the community generally supposed. This additional space was filled about July 10, when the bees commenced hanging outside very thickly. On the 15th the super was removed, containing eight splendid combs, thick, white, and all sealed, and weighing 44 lbs., without the honey board; tare about 4 lbs. I now tried the weight of the hive; but you may guess my dismay, not unmingled with satisfaction, at finding my weighing apparatus not equal to the occasion—60 lbs. being its limit, and my hive weighing more. No need to feed, clearly, and thinking that perhaps more could be done, a bell-glass 7 inches in diameter, and 7 inches high, was placed on next morning. This contained a good-sized piece of new but dirty empty comb. This super to-day (July 26th) is filled with comb, all stored, and nearly half-sealed. When finished it will weigh 10 lbs. net. The sweets of bee-keeping ought to be honey and sugar.* If all swarms behaved like this one, bee-keepers would get a little of both.'

Of the correctness of this statement there can be no necessity to bear witness, but, incidentally, we may say that we assisted at the removal of the supers; that the hive was then pronounced 'as heavy as lead,' that it stood the ensuing winter without loss, and in the spring gave four swarms, one of which was divided, making a total increase of six, all of which did well. Mr. Cheshire's own account of these will be found on p. 27, Vol. 2, *B. B. J.* It will be thus evident that the original swarm paid for itself in its first year, a by no means uncommon occurrence, but one which we will not anticipate in our remarks, preferring to be on the safe side in our estimate of probable results.

(To be continued.)

OUR AUGUST BEE PICTURE.

Our readers will remember the interesting little picture, 'Bee Swarming,' given in our issue for August last, from a sketch by Mr. D. J. Godfrey (son of R. R. Godfrey, Esq., of Grantham), and engraved *specially for our Journal*. Since its appearance there, M. Dennler, of Alsace, Editor of the *Alsace-Lorraine Bee Journal*, requested he might print the same in his *Journal*, a request which was readily com-

* Another word for money.—Ed. *B. B. J.*

plied with, and we hope to the delight of the readers of that able *Journal*. Following M. Dennler came a request from Hugo Hilschmann, Editor of the *Wiener landwirthschaftliche Zeitung*, the largest agricultural paper in Vienna, that he might print the picture,—a request also readily complied with, and will appear in an early issue of that important *Journal*.

WINTER FEEDING WITH BARLEY SUGAR.

Our suggestion as to putting barley sugar into small tins has caused us some trouble, because we have been unable to supply the tins; but we have done the next best thing, we have procured a few grosses of small glass pomade jars, holding about 4 ounces each, the net weight of each glass being a very little trifle more than two ounces. Twelve of these when filled will weigh 4½ lbs., and will contain three pounds of barley sugar, which we offer to supply to those who may need them for half-a-crown, bottles included.

AMERICAN FIXINGS.

When about going to press we received an announcement that fourteen large cases of American bee-hives and furniture had arrived, and were being landed in London, to be consigned to our care for distribution to British bee-keepers. They are from the great firm of J. H. Nellis, of Canajoharie, N. Y., editor and proprietor of the *Bee-keepers' Exchange*, one of the few bee journals that has a thoroughly practical bee-master as its responsible head. The goods come to us through Messrs. Thurber, of London, the well-known wholesale honey merchants, and dealers in American provisions, who have constituted us sole sub-agents for the United Kingdom. We were naturally anxious to see the wares, that we might announce them to our friends; and though we have not yet been able to overhaul the whole of the cases, or to 'figure out' the invoices, we have seen enough to delight our eyes, and we trust win the good opinion of those who think bee-keeping editors are interested in maintaining fancy prices for the necessaries in bee-culture. We have always endeavoured to keep down the cost of such goods, and have from time to time introduced the greatest facilities and recommendations for enabling our readers to manufacture and provide them for themselves, and now we have the help of both Nellis and Thurber in promoting that end. There are no fancy goods, and the prices are exceedingly low, but more regarding them will appear in our next.

Comb foundation of the usual type will be offered at 2*s.* 6*d.* per lb. for 10 lbs. and upwards; flat-bottomed, of exquisite make, very thin, and made up with straight wires that cannot stretch, yet so thin that the bees will not feel it, costs more, but being thinner will go much further, and will be about 3*s.* 6*d.* per lb. Of hives there is not a great variety, but they are distinguished for their excellence, the best, the Van Densen-Nellis' Simplicity, being especially interesting, because in it the principles we have so often written of with regard to frame-ends are carried out, the upper half being widened to fit closely and prevent the loss of heat. Sections are plentiful and good, tin dividers being mostly recommended, though we confess to a liking for wooden ones. In our next we propose to illustrate the chief of the goods, and shall by then be able to say much more about them.—ED.

BRITISH BEE-KEEPERS' ASSOCIATION.

The Fourth Quarterly Meeting for the purpose of conferring with the representatives of County Associations, was held at 446 Strand, on Wednesday, January 14th. Present, Mr. T. W. Cowan (in the chair), Rev. G. Raynor, Rev. E. Bartrum, Messrs. J. P. Jackson, J. Hunter, C. N. Abbott, J. M. Hooker, R. R. Godfrey, F. Cheshire, and Rev. H. R. Peel, Hon. Sec. There were also present the following county representatives, viz. Mr. J. N. Bower, Midland Counties; Mr. F. H. Lemare, and Captain Campbell, for Surrey; Mr. Jesse Garrett and Mr. Allen for West Kent, and Mr. G. D. Clapham, Essex.

The minutes of the last meeting, as read by the Secretary, having been unanimously confirmed and signed, reports were read from the sub-committees appointed to make the necessary arrangements for the publication of diagrams, and to afford facilities to members for the sale of their honey. For the result of the labours of these sub-committees we refer our readers to the Committee's report, as published in another column. The Secretary also read the report of the Association's work during the past year, together with the statement of income and expenditure, as audited by Mr. W. A. Kirchner, the appointed auditor, showing a balance (including stock) in favour of the Association of 102*l.* 12*s.* 6*d.* It was unanimously resolved that the report and balance-sheet should be printed and circulated previous to the general meeting, which was fixed to take place on Wednesday, Feb. 18, at 446 Strand, commencing at four o'clock. In respect to the writing of the small Manual for Cottagers, Mr. Hunter reported that the manuscript of the chapters allotted to him was now finished. Mr. Cheshire stated that owing to illness and a pressure of engagements he had not made much progress with his part of the work, but would undertake to have it completed previous to the time fixed for the general meeting. Mr. Abbott kindly undertook to supply Mr. Hunter and Mr. Cheshire with any illustrations that had appeared in the *Bee Journal*, which might be suitable for illustrating the work.

The Secretary called the attention of the Committee to the fact that the work of the Association was now very great, and was increasing every month, and in view of this fact, and as his own time was so much occupied with other business, he must ask the Committee to appoint him an assistant-secretary, otherwise he felt he must resign his office.

It was the unanimous opinion of the meeting that an assistant-secretary should be appointed; and Mr. Hunter gave notice that at the next general meeting he should

move the appointment of Mr. Huckle as assistant-secretary.' Mr. Abbott intimated his intention to second this resolution.

The subject of honey and bee-keeping necessaries being exhibited at the Dairy Shows was brought forward, and on the motion of Mr. Abbott it was resolved, 'That the Rev. H. R. Peel, as Secretary of the Association, be empowered to communicate with the authorities of the Dairy Shows, with the view of inducing them to admit apicultural matters to their shows, as an encouragement to bee-keeping.'

The following subject was also discussed with the county representatives present, viz. 'The best means of communicating with the representatives of county associations as to the subjects they desire to bring forward at the Quarterly Meetings.'

This subject was discussed at some length, and most of the representatives present took part in the discussion. The general opinion of the meeting was to the effect, 'That the best means of procedure was for the Secretary of the Central Society to inform the Secretaries of the County Associations of the date of each meeting: the Secretary of the County Associations then to transmit to the Secretary of the Central Society the terms of any resolution which their representatives might wish to bring forward.'

Mr. Godfrey pointed out the necessity for the rules respecting the relations of the county representatives to the Central Society being printed for the guidance of the representatives themselves.

The Secretaries of the Hertfordshire and West Kent Associations having produced their balance-sheets for the past year, a discussion was raised as to the advisability of each affiliated Association having their annual reports and balance-sheets printed and forwarded to the Secretary of the Central Society.

The Chairman considered that this arrangement should form one of the terms of affiliation, and if carried out would tend to increase the bond existing between the Central and County Associations.

No resolution, however, was come to upon the subject.

Quarterly Conversazione.

The fourth quarterly conversazione was held at 446 Strand, on Wednesday, January 14th. Capt. Campbell, H.M.I.N., of Box Grove, Guildford, in the chair. There was a large attendance of members, including Rev. E. Bartrum, Rev. J. M. Guest, J. Noble Bower, H. Jonas, T. W. Cowan, Jesse Garratt, F. Cheshire, J. Hunter, J. M. Hooker, C. N. Abbott, G. D. Clapham, C. J. Stevens, R. R. Godfrey, F. Lyon, J. P. Jackson, Rev. H. R. Peel (Hon. Sec.), F. H. Lemare, &c., &c. The subject for discussion was,—

'The Ligurian Queen Bee—Her Introduction to Alien Stocks, and the best means of pure Propagation,' introduced by the Rev. G. Raynor, of Hazeleigh Rectory, Maldon, Essex.

The Rev. G. Raynor, having been introduced to the meeting by the Chairman, read the following paper:—

Mr. Chairman and Gentlemen,—The subject proposed for our consideration this evening is one of the most important of those connected with apiculture, inasmuch as it embraces the whole question of the best variety of the honey-bee as yet domesticated by mankind.

It is, I believe, the general opinion of most of those who have given the Ligurian bee (*Apis Ligustica*) a fair trial, that it far excels the common black bee (*Apis Germanica*, if I may so call it), in the hardiness of its nature, in its greater activity, its honey-gathering qualities, its gentle disposition, and, above all, in its extreme fertility. Twenty years have passed since the first introduction of the 'gold-bespangled bee' of Virgil into our native land, by that enterprising member of the British Apiarian Society, Mr. Neighbour—a length of time amply sufficient to prove its superiority to all other varieties at present in existence. It is not my intention, however, nor is it apposite to my subject, to enter upon a discussion of the superior qualities of the Ligurian bee; but since the question of its *origin* is a most interesting one to apiarians, I may be permitted, perhaps, a slight digression on this point.

We know that Aristotle, about three centuries before the Christian era, and Virgil, who wrote about the time of our Lord, speak of a parti-coloured or gold-spangled bee, which both pronounce to be superior to the darker-coloured race. But whether this yellow-banded bee corresponded with, and became the progenitor of, our present variety of the so-called Ligurian race, is a question, I think, which admits of much doubt. My own opinion is, that, taking into consideration the facility of communication between Egypt, Greece, and Italy, at the time at which Aristotle and Virgil wrote, the Egyptian bee (*Apis fasciata*) had been imported to Athens and Rome in considerable numbers, and that by this means a hybrid race, between the Egyptian and the black bee, had been established in both countries, which justified the former author in applying to it the epithet, ποικιλη—spotted, variegated, or parti-coloured—and the latter in the use of the term '*ardentes auro*,' or 'glittering with gold.' But that the Ligurian was carefully bred and handed down in its present state of purity, by either Greek or Roman, requires a greater amount of faith than I possess: and this view is amply borne out by experiments made some ten years ago by Herr Vogel, a German apiarian of note, who states that hybrid queens bred from the Egyptian and black races when mated with black drones produced an offspring of two types, but that the distinctive marks of the parents' varieties were completely mingled in part of the mixed progeny. One part of the young bees was so like the Italian bee in colour, size, and character, that no one could distinguish them from Italians, while the other part was black with white hairs, like the Egyptian bees, and of exactly the Egyptian size. The idea then presented itself, 'Is the Italian bee the result of a cross, thousands of years ago, between the Egyptian and the black bee?'

Although discouraged by his apiarian friends in this idea, Herr Vogel persevered in his experiments, and discovered that a queen three degrees removed from pure Egyptian blood, produced drones of two distinct types, viz., one apparently pure Italian, the other, to all appearance, as pure Egyptian. Again Herr Vogel bred from a queen two degrees removed, young queens, which were impregnated by drones of the Italian type, from the same mother, and found that the worker bees were all Italians, but the drones of the double type. Further breeding into the third and fourth generation produced the result, that all the drones, as well as the workers, assumed the Italian type alone. He was then met by the objection that a race so produced would show a tendency in future years to separate into its original factors. But this view he has met by the declaration that he is in possession of the nineteenth generation of the Black-Egyptian mixture, which remains constant; and, if anything grows more and more decided, so that he is thoroughly convinced that from a cross between the Egyptian and Black bees, a breed is produced which no man can possibly distinguish from the pure Italian race. Supposing these experiments to have been faithfully carried out, there can be little doubt whence the Italian or Ligurian bee derived its origin. And the lesson, I think, to be deduced is, that by a judicious system of crossing the several varieties, viz. Black, Italian, Egyptian, Cyprian, and Carniolan, and being careful to breed for those points or natural qualities most desired,—such as temper, size, fecundity, disposition to swarm or the converse, longevity, honey-gathering qualities, etc., we may, in course of time,

arrive at that great desideratum, a breed uniting all these qualities, and far superior to any we at present possess—one indeed which combines the advantages of every known race. On these grounds it is that, I believe, the British Bee-keepers' Association has entered upon the right course in assigning to Mr. Cheshire the Cyprian queen, kindly presented by Mr. Jackson, and should be well pleased to see the Association encouraging experiments in the same direction, by procuring specimen queens of the different varieties, and entrusting them to qualified members for solving a problem so pregnant with the future weal of apiarian culture.

Before the present assembly I need not enter very minutely into the description of an Italian queen. She, with her beautiful rings of gold, her bright appearance, and gentle disposition, is too well known to require a description at my hands. The variation in the colour of queens, however, is considerable, the bands being more distinctly marked in some specimens than in others, and the size and shape vary also. I have always found the young queens of a decidedly darker shade; and full brilliancy of colour, as well as size, is not developed until the second year. By these two points I invariably judge the age of my imported autumn queens, and, except in one instance, have always found them in their first year; the honesty of the Italian breeders contrasting favourably with the sharp practice of some of our Anglo-Saxon race. It has been alleged against the Italian bee that its disadvantages are threefold:—1st. That it is short-lived. 2nd. That it builds more drone-comb than the black bee, and 3rd. That it is always found weak at spring. After an experience of fifteen years, I can only say that, as compared with our English bee, I do not find these assertions true. It is likely that *imported* queens may be shorter lived; but those which I have *bred* have not been so. At the present time I have a fine queen in her fifth year, from which I took a large swarm, artificially, last July, giving it another queen, and she (the mother) is still at the head of a strong colony. I rarely keep my queens beyond their fourth year, and to this period home-bred Ligurians have, with me, always attained, except in case of accident. Then as regards the building of drone-comb, they do not appear to be more inclined than hybrids, or others; but even if this were so, the fault is easily remedied by the use of comb-foundation. I have yet to learn that colonies of Ligurians are usually weaker at spring than others: on the contrary, they have often proved the strongest in my apiary.

After allusion to the reputed faults of the Ligurian race, I may, perhaps, be permitted to state my own experience on one or two noteworthy points, proving their advantages: and, first, with respect to their extreme fertility. During the summer of 1873 a stock of Ligurians in my apiary, having at its head an imported queen of the previous year, gave me six natural swarms, all of which survived the winter, and became strong and flourishing stocks the following year. I am not aware that an increase of the black race so great as this has ever been chronicled. And next, as to their honey-gathering qualities, I may relate that towards the close of the month of August, in the year 1874, being about to remove from my Ligurian stocks several supers only partially filled, I noticed that new comb of remarkable whiteness and purity was again being added, and rapidly stored with honey of equal purity, the flavour of which was somewhat peculiar, being slightly impregnated with what I thought to be the taste of bitter almonds, but not unpleasantly so; indeed, to my own palate, it was honey of most delicious quality. On searching the country round, in order to discover the flower from which this novelty was procured, it was not until after several long rides that I found my Ligurians busily at work on the spikes of a pale bluish flower, which flourishes in great abundance on the low grounds surrounding the estuary of the Blackwater, from four to five miles distant from my apiary.* The plant is a species of thrift, called sea-lavender, its generic name the *Statice lemonium* of Pliny and Linnæus. While the Ligurians were thus reaping a second harvest, my black stocks, with supers in a similar condition—that is only partially finished—had evidently ceased work, were destroying their drones, and making preparations for closing the labours of the year. The Ligurians continued working far into the month of September, furnishing several magnificent supers of purest white comb honey. Whether the black bees were unable to cope with the distance, or from shortness of tongue to extract the sweets, I am unable to state; but I have repeatedly noticed both Ligurians and hybrids at work on the fields of red clover and alsike around my apiary, when a black bee was nowhere to be seen. And this fact would appear to be fully confirmed by the interesting experiments respecting the length of the tongue of both races, made of late by Professor Cook, and reported in the *Bee Journal* of the present month.

On the method of introducing alien queens opinions vary considerably, but if we act upon the principle of thoroughly intimidating the bees before the union is attempted, we shall not err far from the truth. I must admit that my views on this subject have been considerably modified in consequence of the vast strides made during the last few years in the science of apiculture. Formerly I preferred to use a cage, but of late years I have dispensed with this somewhat troublesome method, and now introduce the stranger queen direct, without further ceremony, on the removal of the reigning monarch. If the stocks are in fixed-comb hives, they are driven into an empty skep, their queen removed, the bees slightly sprinkled with thin syrup, scented with cloves, and the alien queen at once dropped into their midst, the whole being well shaken together and again returned to their hive. If it be desired to change the queen of a moveable-comb hive, the reigning monarch is secured and placed in a cage, the hive removed some paces from its stand, and an empty skep, in which the caged queen is placed, set on the old stand. The bees are then shaken or brushed from all the combs at the entrance of the skep containing the imprisoned queen. Sufficient time being allowed them to settle quietly in the skep, a little smoke is injected, the queen and cage removed, and the new queen given as before, and, after a few shakes of the skep bees and queen are returned to their old hive, and placed on the accustomed stand. I have found this method most successful, and the time and trouble far less than by the plan of caging for twenty-four or forty-eight hours on brood-comb. Occasionally the combs of the hive are slightly sprayed with scented syrup before the bees are finally returned, but I often dispense with this.

If, however, a cage be preferred, those in use are too well known to require a full description here. The one I now offer to your notice is my improved Renfrewshire cage, which may be compared with its original placed beside it.† The small wire one is the 'pipe-cover,' used by the late Mr. Woodbury, which I have found generally successful when firmly pressed to the mid-rib of a tough comb in the brood-nest; but I consider it important that the queen of the hive should have been imprisoned for twelve hours on the spot intended to be occupied by the alien, and best that the change of queens be made at evening, the new monarch being released on the following morning. On removing the queen of the hive before imprisoning the alien, I have at times pierced with my penknife the portion of comb between the cage and the opposite side, especially if containing sealed honey. By this means the bees are enabled to set free the im-

* The actual distance, by winding lanes, is about five miles; as the bee flies it is, probably, not more than three.

† An engraving of both cages will be found in the *B. B. J.*, vol. ii. p. 118.

prisoned queen, and the result has always been successful. This cage is of German manufacture, and was supplied to me at the rate of 2*s.* per dozen by Mr. Woodbury. It will be observed that the material is extremely fine wire, I am not aware of any source whence these cages can now be procured.*

Mr. Abbott relates, in an article in the *B. B. J.* (vol. iii. p. 25), the fact of his having introduced forty-four Italian queens to black stocks in straw skeps without a single failure, and the principle on which he acted is the one I now recommend, viz. that of intimidating the bees previous to inserting the alien queens, since it is evident that he must have driven the bees from each skep in order to capture their queens. The Italian queens, caged, were then placed between two combs, either at the top or bottom of the hives, and were not released until two days afterwards. The experiments which I have made go far towards proving that these alien queens would have been equally well received without any confinement at all.

Who that has witnessed the thoroughly subdued condition of the driven bees at our shows, can doubt that their state of subjection is such, that unions of queens, workers, or drones, may be made in perfect safety, if only the bees are kept under the influence of fear?

For timid persons, perhaps, the safest plan is the use of the puff-ball; but the union should be made at a time when there is no brood, or but little in the hive. I have never found the moderate use of puff-ball injurious to *adult* bees, and the method detailed by me in vol. i., p. 103, of the *B. B. J.*, has proved successful in every case, and repeatedly so, when other methods have failed. If, when cages are used, queen-cells are formed by the bees, I would say, 'Beware!' for trouble surely looms in the distance. The most obstinate cases of refusal of a queen, which have come under my notice, have been those of this class. Since, however often the cells have been cut away, others have been immediately formed, at times continuously for five or six days; indeed, if memory serves me, the worthy Chairman of our Committee, Mr. Cowan, has related an instance in which thirty-six of these cells were raised in a small observatory hive, on the attempt to change its queen. On the second day, after removing a queen from a strong stock in my own apiary, I was surprised to find no less than twenty-one queen-cells already commenced. The bees are always in a state of commotion and irascibility whilst this is going on, and woe be to the stranger queen entrusted at such a time to their tender mercies, for her fate is either instant death or encasement.

If a cage is used, let it be laid down as an *axiom* that the queen of the hive be imprisoned, for at least twelve hours, in the same cage, on the same spot, which the new queen is intended to occupy. To release a queen from encasement, a jet of smoke should be directed on the well-known circle of bees, when they will immediately separate without injuring the imprisoned queen.

There appears to be an absurd notion abroad that imported queens cannot, without danger, be long kept in confinement, and we read accounts of enthusiasts capturing and confining the black queen days before the arrival of her successor, in order that the latter may be enthroned at the very moment of her advent. The queen which you now behold confined in this small box—the one in which she travelled from her Italian home—is one I purchased at the Hemel-Hempstead Show on the 1st of October last, and her home has been this same small box until this day, the 14th day of January. Supposing her journey to have occupied a fortnight, the actual time of her confinement will have been seventeen weeks, and, as you perceive, she is sprightly and active as on the first day of imprisonment. At first her attendant bees numbered about 200, but they are now reduced to something like fifty, the remainder having died from old age. They have been liberally supplied with honey, the box has been occasionally cleared of dead bees, and disinfected with a weak solution of salicylic acid, and queen and attendant have been occasionally taken into my garden on a fine day, and allowed to take their flight, the queen invariably availing herself of the permission, but always returning to her box in the course of five or ten minutes. At other times the little colony has been placed under a large glass shade, well ventilated, for air and exercise. Their standing place has been a sideboard, the wall at the back of which contains a flue. I hope to keep this queen, as at present, for some time longer, increasing her attendants when required. Let me suggest to the importers of Italian, and other queens, the great importance of examining these boxes on arrival, cleansing and disinfecting them, and supplying food whenever requisite. This would entail but little extra trouble, which, I feel convinced, would be amply repaid by the satisfaction afforded to the purchaser.

But, Sir, I am warned—to use old Virgil's metaphor—that it is time to draw in my sails, as one approaching the end of his labours, and about to bring his barque to land. One division, however, of my subject still remains, which requires to be briefly treated. That is the best means of controlling fertilisation, on which pure propagation depends. As the profit derived by our agriculturists from their stock, depends more upon the purity and excellence of the strain than upon the actual breed itself, so it will be found in the case of our *bees* also. And if the reputed discovery of Professor Hasbrouk, in procuring the fertilisation of the queen-bee while in confinement, prove a reality, we may yet live to see the old black bee so much improved by a course of breeding from selection, as to eclipse its far-famed, golden-banded sister. But, Sir, without wishing to cast discredit upon the veracity of our American apiarian brethren, I must take leave to doubt that actual impregnation has been procured by the stated means. Reaumur, Huber, Kirby, and a host of German, as well as of our own apiarians, have tried in vain, by similar and various means, to solve this enigma, more difficult by far than that of the fabled Sphinx of old. Kirby applies to the queen's hymeneal trip the word 'sublime'—*agum regina et mater, in sublime fertur, maritum inficiem petens, qui voluptatem brevem, vitâ emat.* But it would seem to me almost descending from the sublime to the ridiculous to suppose that the virgin queen, in order to accomplish her object, could ascend 'on high,' with her bridegrooms select, in a *sugar tub!* Time, however, will prove the truth or falsehood of this idea.

In the absence of any method as yet discovered of gaining our object, during the confinement of the virgin queen and selected drones, I have used the 'Kohler process,' which I will endeavour briefly to describe, as explained by Herr Kohler himself. Take the colonies, with young queens not yet fertilised, place them for three, four, or five days in a dark and cool cellar, and with them, also, a stock containing abundance of Italian drones. When a bright, sunny day occurs, watch the stocks in your apiary until the common drones have ceased their flight, and then restore the hives containing the Italian drones and virgin queens, to their accustomed stands, and set them at liberty, after giving to each a cupful of liquid honey. The queen and drones being ardent, and having been unable to fly for several days, the bees, excited by the honey and their previous confinement, will become so eager after flight, that all will play, as if mad, and fertilisation will generally follow. Be careful, however, to return to the cellar in the evening every colony, the queen of which has not been seen to return with the sign of fertilisation, and repeat the process, until it is certain that the desired result has been attained. This plan pre-supposes the use of nucleus

* An engraving of it may be seen in the *B. B. J.*, vol. i, p. 103.

boxes free from drones, other than Italian, or otherwise pure Italian stocks. In putting it into practice, before removing the hives to a cool, dark place, I have always been careful to set each hive upon a ventilating floor-board, to admit air at the top of the hive also, and to close the entrances. By using these means, there cannot be the least doubt that pure fertilisation may be procured. Dr. Dzierzon, the late Mr. Woodbury, and numerous other scientific apiarians, have given in their adhesion to this process. The evidence of Baron von Berlepsch on the point is most conclusive, who states, so far back as the year 1867, that he had tested the discovery at six different times, and that on every occasion it had proved successful.

Various modifications of this process have been recommended, notably one by the late Mr. Woodbury, thus: 'As soon as a young queen is hatched out in a nucleus box, a number of pure Italian drones are selected for her companions, and confined with her in the box, until she is of age sufficient for making her aërial trip. Then on the afternoon of a fine day, when all other drones have gone to rest, the hive is opened, and the queen and her companions immediately avail themselves of their liberty, and a pure breed is established. Should the first tour prove unsuccessful, the hive is again closed, and not opened till the following afternoon.' The young queens generally make their wedding tour from the fifth to the twelfth day of their age, always supposing serene air and sunny skies.

In concluding these few and crude remarks, thrown out more with a view of eliciting the comments and observations of my brother apiarians — many of whom I see around me far more able both in experience and scientific attainments than myself—than of stating my own opinions, I would crave the indulgence of this meeting, pleading the all but universal interest and importance of my subject, and trusting that the manner in which my task has been performed, will be pardoned on account of its absorbing interest.

The Chairman said he was sure all present had listened to the paper with the deepest interest, and he hoped the discussion would be entered into with heartiness and zeal.

Mr. Hunter said the Rev. G. Raynor had spoken of the 'beautiful rings of gold' of the queen, but although a great many queens had passed through his hands, he had never seen these 'beautiful rings' brighter than a leather colour. Their friends the Yankees were very fond of speaking of the beautiful rings of gold their queens have, but he had never been privileged to see them.

Mr. Abbott: Perhaps you have never seen a Yankee Ligurian queen?

Mr. Hunter: Perhaps not.

Mr. Abbott said the Americans had certainly some splendid Ligurian bees, but they breed too much for beauty at the expense of the useful qualities Englishmen wanted their bees to possess.

Mr. Hunter said Mr. Raynor in his paper had quoted the great prolificness of a five-years-old queen, but how was the age ascertained in this case? His experience was that unless a queen were constantly kept under observation there was great danger of its being superseded unknown to the bee-master. When a bee began to get 'oldish,' which he should say would be the case in about three years, they would occasionally find two queens, and the old queen after a week or two would disappear, although the bees might be living in apparent amity with the old queen. Unless Mr. Raynor could assure them that the queen in question had been under his observations continually he should say the age was not proven. Mr. Raynor further said that he found his Ligurian bees working on thrift several miles away from home; but how did he know they were his bees? Perhaps he would say nobody else in the district had Ligurians, and that might be an answer to the question, but he should require not only proof that there were no Ligurians within five miles of Mr. Raynor's, but within a radius of ten miles. His bees were located in a garden near the village of Ealing, the ground being rather bare, but at the top of the hill, in Castle Bar Park, there was a large quantity of limes, yet his bees did not go to these limes, although they were not more than half-a-mile distant. Therefore, he had a very strong idea that bees never travelled five miles in order to fill their hives with honey. The flight of bees had been a subject of discussion of some time, and he knew Mr. Woodbury had stated that his bees went five miles for heather. Well, he did not doubt that bees would do that, but the time and labour consumed in the journey would so wear out the lives of the bees that they would not do much to fill their supers. Two or three years ago it was stated in the course of a case in which he was subpœnaed, that bees had spoiled some fields of swede seed, by crossing it with pollen of rape, although there was no rape grown within a distance of seventeen miles. The Curator of a Botanical Garden in the north of England said it was no uncommon thing for bees to travel that distance, but of course he (Mr. Hunter) ridiculed such an idea. What the result of the case was he never took the trouble to inquire.

Mr. Cheshire said they were greatly indebted to Mr. Raynor for his paper, which was remarkable for the beauty of its English as well as for the amount of information it had afforded. As to the colour of queens, he was sorry that the example then in his mind obliged him to refer to himself. At the first bee show at the Crystal Palace he had a frame-hive containing a stock of bees, the queen being absolutely yellow throughout the whole length of her abdomen: and at the centre of each ring was a dark chocolate-coloured spot. Mr. Symington exclaimed, upon seeing her, that she was the finest queen he had ever met. In Mr. Neighbour's book an illustration of an Italian queen was given, but it was not nearly so bright as the particular bee to which he had referred. With regard to flight of bees, he might mention an incident that came under his personal observation near Newcastle. A stock of bees was removed at night to the moors, a distance of four miles in a straight line; but on the following day there was a large cluster of drones on the spot previously occupied by the hive, from which he concluded they had travelled two miles, got on the old track, and returned to the old stand. He was pleased to hear Mr. Raynor speak so hopefully of the ease with which queens might be united to alien stocks. Just lately he had had very bad success in this operation. Up to the last summer he had always boasted of uniting queens in large numbers with only three failures; but in the previous year he was sorry to have to report five failures in the case of an individual stock. This was the history of his trouble. Late in the year he drummed three stocks, and put them into one hive. He removed the queen, and caged a Ligurian in the stock; and after forty-eight hours he felt perfectly certain that he should be able to liberate her, but upon doing so she was seized immediately. He caged her again, and allowed twenty-four hours to elapse before liberating her, but she was seized again; and although he fumigated the bees with puff-ball, still they at last killed the queen. He tried the same experiment over and over again, and four queens were killed, notwithstanding that he had eleven times in all puffed the bees to perfect stupefaction. At last he liberated a queen from the Raynor cage at night, and she was accepted; and the Association would be glad to hear that the stock was now doing wonderfully well. The queen produced a considerable quantity of Ligurian brood, and the bees were as lively and bright as any he possessed, notwithstanding the fumigation to which they had been subjected.

As to mating he thought no success would be obtained if the attempt were made on the fourth or fifth day, his experience being that the seventh day was almost in every case the time of mating if the queen had been allowed to leave the cell as soon as mature (of course weather permitting), her flight being understood. Mr. Raynor had spoken of the size of bees, and he knew he should be in the minority when he said an increase in the size of bees would, he imagined, be of no advantage to the bee-keeper. Supposing eight bees could be rolled into one, the result would be a bee twice as long as the one they now possessed, but it would be able to do only four times the amount of work that an ordinary bee could. Hence he for one, upon mathematical grounds, did not think anything would be gained by increasing the size of the bees.

Mr. Abbott said he could confirm the remarks of Mr. Cheshire as to the introduction of the queen, for he had not been able to follow Mr. Raynor's plan without loss. His last experience was with a batch of queens from Switzerland, which were received in the autumn too late for sending out, and too late to keep them with a view to introducing them in the spring. He adopted the plan of fumigation, the material being from Scotland, and not quite the correct sort; and it did not have the effect of throwing the bees into a comatose state. They, however, had so much of it, that they fell into the hives somewhat stupefied: and if fear had anything to do with it, they should have been perfectly harmless. He captured the queens and fumigated all the Ligurians, and out of eight or nine introductions, only three succeeded, as he believed, as on the day after the experiment was tried, he found four or five queens outside the hives. He had always found the best way of introduction was that which he had put in the *Journal* on several occasions, viz. to cage the queen alone at a time when there were plenty of young bees who would feed her, exactly the same as they would feed their own mother, and after the lapse of forty-eight hours he had never had the slightest difficulty in regard to her release, and success had been uniform. Upon the question of the flight of bees he believed that they were attracted to certain spots where flowers abounded by the scent being carried by the wind; and after a day or two they would go to the same spots, aided by memory. In regard to Mr. Hunter's bees very probably they did not know of the existence of lime-trees so near to them.

Mr. Hunter: I take it the wind would not blow down the hill, but would go over the tops of the houses in the valley.

Mr. Abbott said he did not suppose Mr. Hunter was entirely free from wind because he lived at the bottom of the hill; and he mentioned that his bees were accustomed to going to limes when in bloom some way off, and neglected a nearer park, where there was a large quantity of clover. People often make the mistake of supposing lime-honey to be clover-honey, and so on.

Mr. J. P. Jackson said he had followed Mr. Abbott's plans, and had never had more than two or three failures out of about forty attempts; certainly he had invariably introduced the queen in summer during the honey-gathering period, and that, perhaps, would make a great difference. His Ligurians started pollen-gathering much earlier than the blacks. The Americans found fault with the Italians because they were so active, and would go out in stormy weather, doing considerable harm to their hives.

Mr. Cowan advised that the prolificness of the bees should be studied rather than their colour. He had had Ligurian queens so dark that they could scarcely be distinguished from other bees, but they were very prolific and worked well. He did not think with Mr. Jackson that Ligurians went out too early in spring, because they began breeding much earlier than the black bee; and in the case of prolific queens they made up any loss sustained in foraging. He had always found Ligurians ready for swarming long before the others.

Mr. Lyon suggested that the length of tongue should be looked to before either the size or the colour of the bee. The longer the tongue of the bee the greater the quantity of honey that it could gather.

Mr. Hunter considered that if a dozen tongues of Ligurians and an equal number of those of blacks were mixed up together, no one would be able to tell the difference by the length.

Mr. S. J. Baldwin said he had had dark Ligurians which were decidedly more prolific than yellow ones; and as to the length of tongue, he found that where two different hives were located together he got a much better harvest of honey from the Ligurians than from the blacks. He must corroborate the statement of Mr. Raynor in regard to the flight of bees. Three years ago he removed a stock from Bromley to St. Mary Cray, they being shut up at night; but on the following morning, on returning to Bromley, he was astonished to find a large number of the bees. He should say the distance between the two places in a straight line would be between three and four miles.

Mr. Cheshire said he had omitted to mention a circumstance which occurred in his experience last autumn. He bought a skep of bees at the point of starvation; he drummed the bees, took the queen away, and gave her to another stock, adding the bees to a little Italian stock in a weak condition. Two days afterwards he saw the Italian stock apparently disquieted, and on opening it he found the queen encased in a ball of these added bees.

The Rev. G. Raynor: Did the queen survive?

Mr. Cheshire: I took her out, caged her, and a few hours afterwards she was successfully introduced.

Mr. Abbott said he ought to mention how he ultimately succeeded in queening the hives of which he had spoken. Not having exhausted his stock of queens, he went through the performance recommended by Mr. Neighbour. He took off the bottom of the box and put a sheet of perforated zinc in its place, thus giving the bees the benefit of the heat and odour from the hives below. After the lapse of nearly a fortnight he forced a hole through the zinc, and the bees and queen then went into the hive.

Mr. Baldwin said he had found it very advantageous to kill the old queen and place her in the cage with the new one which he was about introducing.

Mr. Cowan suggested that the better way would be to keep the old queen until the new one had been successed with.

Mr. Stevens asked how long bees could be kept in a small box like the one on the table for travelling purposes. He should like to ask Mr. Cowan, with reference to the paper read at the previous meeting, whether he meant by 'upward ventilation' an actual passage of air through the quilt or top covering. In the case of a straw skep he could not imagine that there could be any passage of air through the top covering.

The Rev. E. Bartrum, who said he had come as a learner, asked if it was considered of any advantage to put workers in the cage along with the queen. Up to what date would Mr. Raynor advise the substitution of a Ligurian for a black queen?

The Rev. G. Raynor then proceeded to reply to the various questions to which the paper had given rise. When speaking of the 'beautiful golden rings' of the Ligurian queen, perhaps he spoke rather too poetically; doubtless the colour varied very much, some being much brighter than others. His experience had convinced him that queens became lighter as they advanced in years. The five-years-old queen he could not say he had had constantly under his eye, and it was not marked, but he flattered himself that he knew every queen in his apiary. He identified his Ligurians at work on the thrift from the

fact that there was not a single stock of Ligurians, other than his own, within a distance of eight or ten miles of his home; besides which his Ligurian stocks were at work, and there were no other flowers in the neighbourhood from which they could possibly get the honey, and the black bees were not at work at the time. Relative to uniting queens, he could give no explanation of the conduct of Mr. Cheshire's bees; he never had the slightest difficulty in introducing a queen when using puff-ball, and when all other means had failed this succeeded. In Mr. Cheshire's case of the queen being encased, he thought if the bees had been left alone the queen would have been liberated without any harm coming to her. Mr. Abbott seemed to have been equally unsuccessful in the use of puff-ball; his own experience was entirely different. There was some truth in the observation of Mr. Jackson, for Ligurians were much more eager workers than the blacks; and they often suffered far more loss by going out in the cold winds than if they had remained at home, but the extreme prolificness of the queen in fine weather soon made up for the loss. As to breeding he thought Mr. Cowan was quite right when he said that good qualities should stand before colour. The bees on the table had been in their present small box about seventeen weeks, and perhaps that would answer the question of Mr. Stevens. Having tried the experiment he considered it a disadvantage to place workers in the same cage as the queen, because it excited the anger of the bees to which it was desired to unite the queen. Provided the weather was not very cold he always liked to introduce queens in September or October.

Mr. Stevens said what he wished to know was how long bees could be kept in a small box without being attended to in any way?

Rev. G. Raynor: About a fortnight or three weeks.

Mr. Cowan, in answer to the question respecting upward ventilation, said the cluster always generated a certain amount of heat, and if a hair cloth were placed on the top the heat would always escape with greater or less rapidity, according to the thickness of the covering.

Cordial votes of thanks were passed to Mr. Raynor for his paper, and to Capt. Campbell for presiding.

The Hon. Secretary (Mr. Peel) mentioned that Mr. S. J. Baldwin had been appointed agent for a prominent Italian apiarian, who had shown himself to be most anxious to become connected with the British Association. He likewise stated that Mr. Hunter had kindly consented to read the paper at the next quarterly meeting, and further drew attention to a number of glass honey bottles on the table, which had been imported from France. Mr. Lyon would be prepared to supply these bottles to any who might be desirous of possessing them.

Mr. Jackson advised that intending purchasers of queens should not go to one person entirely, but by securing a variety of sorts the breed would be improved.

Mr. Lyon followed up the remarks of Mr. Peel in regard to the glass bottles, which were admirably suited for storing honey; and he was willing in the interests of bee-keepers generally to receive orders for small quantities of bottles, and he would put all the orders together, so that they might be executed in one consignment. If the members of County Associations would like to see a sample of the bottles he should be pleased to exhibit them. He stated that in the event of orders being given he could not be answerable for any breakages. All orders must be sent in by April.

The proceedings then terminated.

The diagrams about to be published by the Association were exhibited in the room, and it is expected that they will be completed and ready for sale at the time of holding the general meeting on the 18th inst. Orders for the same may now be sent to the Honorary Secretary.

Annual Report.

In presenting their Annual Report for the year 1879 to the Members of the British Bee-keepers' Association, the Committee gladly embrace the opportunity of briefly reviewing the progress which has been made in consolidating and extending the work of the Association since the General Meeting held on Wednesday, February 12th, 1879, under the Presidency of the Baroness Burdett Coutts.

It is satisfactory to observe that the accession of new members has steadily continued during the past year, and that at the present time the Society may congratulate itself upon numbering in all 215 Members, being 55 more than were entitled to vote at the election of the Committee for 1879.

The full strength and growth of the Association must not, however, be measured by the mere number of Members on its list of subscribers. There are now eight county Associations affiliated with the Central Society, viz. those of Dorsetshire, Devonshire, Hertfordshire, Lincolnshire, Shropshire, Nottinghamshire, Surrey, and West Kent.

These County Associations, by the payment of one guinea annually, are entitled to (1) The free use of the Bee Tent at their Annual County Shows, and to all the proceeds accruing from the same. (2) To a Silver Medal, a Bronze Medal, and a Certificate of the Association, to be offered as prizes for honey, more especially for the production of honey in the comb. These medals and certificates have been offered for competition, and awarded at the County Shows held in Dorset-shire, Devonshire, Hertfordshire, and Nottinghamshire. The Secretaries of the County Associations are requested to furnish the Honorary Secretary with the names of the winners of these medals and certificates in future years, with the view of their being included in the yearly Report. The Bee Tent has also been lent to the County Shows of Hertfordshire, Lincolnshire, Shropshire, and Surrey. Each County Association is entitled to send two Representatives to the four Quarterly Meetings of the Central Association, and to make through them any suggestions or recommendations for the mutual advancement of the relations between the central and the affiliated Associations. Members of the County Associations are also allowed to avail themselves of the facilities provided by the Central Association for the Sale of Honey in the London Market.

County Bee-keepers' Associations are also in course of formation in Lancashire, Warwickshire, Worcestershire, Staffordshire, Buckinghamshire, Berkshire, Wiltshire, Essex, and Suffolk. During the past year, quarterly Meetings have been held, in accordance with the resolution passed at the General Meeting of February 12th, 1879, at all of which Representatives of some of these County Associations have been present. At the close of these Meetings, papers have been read by various Members of the Association, on topics connected with scientific bee-keeping, and general discussions have ensued thereon, viz.:—

(1.) On Wednesday, April 16th, at 446 Strand; subject for discussion: 'The Abdominal Distension of the Hive Bee during Winter, and the means for Checking the Same,' by Mr. Frank R. Cheshire.

(2.) On Tuesday, July 22nd, at the Albert Hall, South Kensington; subject for discussion: 'The Plants and Flowers most worthy of Cultivation as Honey Producers,' by Mr. W. Ingram, of Belvoir Castle Gardens.

(3.) On Wednesday, October 15, at 446 Strand; subject for discussion: 'Wintering Bees,' by Mr. T. W. Cowan, of Horsham, Sussex.

(4.) On Wednesday, January 14th, 1880, at 446 Strand; subject for discussion: 'The Ligurian Queen Bee—Her Introduction to Alien Stocks—and the Best Means o Pure Propagation,' by the Rev. George Raynor, of Hazeleigh Rectory, Maldon, Essex.

These meetings have been reported by Mr. C. N. Abbott, Editor of the *British Bee Journal*, free of charge to the Association. Reports of each meeting, together with the discussions which have subsequently taken place, have been forwarded to each meeting of the Association.

During the past year much practical knowledge of the improved methods of bee-keeping has been disseminated by the attendance of two bee-tents (a second tent having been purchased during 1879) belonging to the Association at Agricultural and Horticultural and other Shows in many parts of the United Kingdom. The following places have been visited, viz. Penzance, in Cornwall, on May 30th; Peterborough, on June 18th and 19th; Croydon, Surrey, June 25th; and Aylesbury, Bucks, 26th; Kilburn, July 1st–8th; Hitchen, Herts, July 9th; Dunstable, Beds., July 10th; Bexley Heath, Kent, 16th; Guildford, Surrey, 17th; South Kensington, 22nd–24th; Winslow, Bucks., 24th; Burton-on-Trent, 26th; Perth, July 30th–August 1st; Southport, Wigan and Magull, in Lancashire, July 29th–August 2nd; Berkeley Castle, Gloucestershire, August 8th; Birmingham, 8th and 9th; St. Mary Cray, Kent, 14th; Shrewsbury, 20th and 21st; Sevenoaks, Kent, 21st; Long Buckby, Northamptonshire, 26th; Sandy, Beds., 29th; Horsham, Sussex, September 4th; Atherstone, Warwickshire, 9th and 10th; Wellingborough, Northamptonshire, 11th and 12th; Petworth, Sussex, 17th; Dunmow, Essex, 26th; Hemel Hempstead, Herts, October 1st and 2nd; Long Sutton, Lincolnshire, 8th and 9th.

At the General Meeting held on February 12th, 1879, it was resolved to afford members facilities for the disposal of their surplus honey. On the 12th March, the Acting Committee appointed a sub-committee, consisting of Mr. Frank Cheshire, Mr. J. P. Jackson, and the Honorary Secretary, to carry out this resolution. By their arrangements, several well-known fruiterers and grocers have been appointed in various parts of London for the sale of honey produced by the Members of the Association; and any Member wishing to dispose of his honey may now send a sample of the same to Mr. S. J. Baldwin, Gipsy Cottage, South Vale, Upper Norwood, S.E., stating the quantity he has for sale, and the lowest price he wishes to take for it. If this is not above the market price in London, Mr. Baldwin will sell his honey for him, charging him five per cent commission. Not less than 28lbs. will be received, and the producer will be required to sign a form of guarantee that the honey forwarded for sale is free from all adulteration, and is of the same quality as the specimen which has been sent as a sample. Members are required to send their comb honey neatly packed in glazed sections or boxes, of one or two pounds each, and their extracted or run honey in glass jars of the same weight.

Mr. S. J. Baldwin is prepared to visit the apiaries, and inspect the bees and hives, of all Members of the Association, for a charge of 7*s.* 6*d.* per day, and his third-class railway fare. Two or more Members may combine in employing him on these terms.

The Annual Show of the Association was held in the Gardens of the Royal Horticultural Society, at South Kensington, on July 22nd, 23rd, and 24th, and, notwithstanding the unfavourable season and the scanty supply of honey, was most successful. A large number of hives, and other articles connected with the improved methods of bee-keeping, was shown in the various classes: and much useful knowledge was diffused by means of the manipulations and lectures given in the Bee-Tent. Most of the Members of the Committee attended throughout the Show, and took great pains to explain the use of the various articles exhibited to many anxious inquirers. The prizes at the close of the Show were distributed in the large conservatory by the Countess Brownlow, who kindly undertook this office in the absence of the Baroness Burdett Coutts, the President of the Association.

The Association was also represented at the Annual Show of the Royal Agricultural Society, held at Kilburn, on June 30th and the six following days, when prizes were awarded:—

(1.) 'For the best Observatory Hive stocked with Bees and their Queen.' (2.) 'For the best Hive on the Moveable Comb Principle, with facilities for storing Surplus Honey.' (3.) 'For the best Exhibition of Pure Honey, in sections of not more than 2 lbs. each.' (4.) 'For the Competitors who, in the neatest, quickest, and most complete manner, should drive out the Bees from a Straw Skep, capture and exhibit the Queen, and transfer both Bees and Combs into a Hive on the Moveable Comb Principle.'

Practical illustrations of the art of Bee Driving, Transferring, Artificial Swarming, &c., accompanied by short Lectures, were given for several successive days in the Bee-Tent, and were witnessed by many thousands of persons attending the Show.

A most successful Show of bees, hives and honey was also held under the auspices of the Association, in the Royal Botanical Gardens, Edgbaston, Birmingham, on August 8th and 9th, when upwards of 1300 persons paid for admission to the Bee-Tent, the receipts amounting to 31*l.* 16*s.* 3*d.* The manipulations were also witnessed by upwards of 100 inmates of the Edgbaston Deaf and Dumb Asylum, who were admitted free of charge, together with the officials of that Institution. The lecture, as delivered by Mr. Cheshire, was interpreted to these visitors by Mr. Arthur Hopper, the head master of their schools.

During the past year, the various Shows held under the auspices of the Association have been visited by Mr. T. G. Newman, President of the American National Bee-keepers' Association, and Editor of the *American Bee Journal*; by Herr Dennler, Editor of the *Alsace-Lorraine Bee Journal*; and by Herr Gravenhorst, President of the Bee Section of the Brunswick Agricultural Society. The Silver Medal of the Association was presented to each of these gentlemen (as a souvenir of their visit), at a luncheon given on July 28th to the principal bee-keepers of England and their foreign visitors, by T. W. Cowan, Esq., at his residence, Comptons Lee, Horsham, Sussex.

In conclusion, the Committee have only to say that the Annual Show of the Association for the year 1880 will be held in the Gardens of the Royal Horticultural Society, at South Kensington, on July 27th, 28th, and 29th, and to beg of all the present Members that they will make the existence and the objects of the British Bee-keepers' Association known as widely as possible, especially amongst the clergy and country gentlemen, who may be expected to take special interest in the welfare of the rural population.—HERBERT R. PEEL, *Hon. Sec., Abbot's Hill, Hemel Hempstead.*

The Committee of the British Bee-keepers' Association have forwarded to the members the Annual Report, List of Members, Balance-Sheet, &c., for 1879.

THE BEE-KEEPERS' ALMANAC, containing prognostications of weather expected, and what to do in bee-management, by Piers Edgcumbe Martin, Master Mariner, &c., &c., contains, in addition to the usual calendar, forecasts of the weather, and what to do with the bees. Captain Martin's 'Weather to be expected' of last year was unpleasantly correct; and if what he promises this year comes 'nearly true' we shall be quite satisfied. January has the character of 'a stormy month generally;' February and March are to have a 'high' temperature for the season. April is to be low in its first half and make amends later on. May is to be high, June above the average, and July is to be 'hot and oppressive,' with little rain. We need not follow the prognostications further, such weather as is promised will make the fortunes of bee-keepers, and make the country rejoice. We hope it will come.

BEE-KEEPERS AT BOW STREET.

James Meldrum, printer, and George Rose, editor of the *Bee-keeper*, appeared before Sir James Ingham in answer to summonses for printing and publishing a malicious libel on Mr. Edward Rossiter. Mr. Terrel conducted the prosecution, and stated that the prosecutor was the proprietor of the *Examiner*, the *Hornet*, the *Mechanic's Magazine*, and various other periodicals, including one recently started, called the *Bee-keeper*, which was registered in his name. The defendant, Mr. Rose, was the editor and part proprietor of the latter, and the other defendant was the printer. The alleged libel was contained in what purported to be an 'apology' for some delay in the issue of the last number. He complained that the two defendants issued what was a spurious copy of the *Bee-keeper* (instead of introducing the ordinary periodical), in which the name of Mr. Rossiter as proprietor was struck out; and the so-called 'apology' imputed dilatoriness and neglect to the prosecutor (a very serious imputation against such a man), and was, in fact, a public dismissal of the owner of the paper by his own editor. The 'apology' was as follows: 'The letters we have received complaining of delay in answering inquiries, acknowledging subscriptions, and attending to business generally, have lately been so numerous, that we cannot reply to each one separately. We take this opportunity of making an apology to all who have addressed us, and informing them that owing to unsatisfactory state of affairs brought on by this great dilatoriness, we have taken the business away from our late publisher, and shall, *pro tem.*, carry it on ourselves. "If you want a thing done do it yourself."—G. Rose.'

The prosecutor was cross-examined at some length as to his transactions with defendants and others in newspaper enterprise, in the course of which a great deal of mutual recrimination took place. The editor and proprietor accused each other of leaving the office and neglecting their duties, and Mr. Rose maintained his right, as part proprietor of the *Bee-keeper*, to insert the announcement. The printer asked why he should be included in the charge, his position being that of a man between two stools; and Sir James Ingham thought that he should not be included.

The prosecutor disclaimed all malice against either of the defendants, but the complicity of the printer was obvious.

Sir James Ingham was of opinion that the whole matter was a squabble between two newspaper proprietors, which ought to have been settled in a civil court; but he consented to look into the legal bearings of the matter, and to give his opinion on a future day.

The summons was therefore adjourned.—*Daily News.*

Committal.—George Rose Martin, publisher, and J. Meldrum, printer of the *Bee-keeper*, were committed for trial on the charge of wilfully and maliciously publishing a defamatory libel on Mr. Rossiter, the proprietor of that paper.—*Daily Telegraph*, Jan. 16th.

Bee Exhibition, *Colmar, Alsace.*—By favour of Herr Dennler, late visitor and exhibitor at our English shows, a hive specially constructed by Mr. C. N. Abbott, of Southall, for Continental use, was awarded a diploma of merit. The award is inscribed, 'Elsass-Lothringischer Bienenzüchter-Verein 11te General-Versammlung und Ausstellung zu Colmar, O. E. (13ten-16ten September, 1879) Ehren-Diplom des Herrn Abbott, Redacteure aus London, für eine leere Bienenwohnung, durch preisgerichtlichen Ausspruch zuerkannt, Colmar, den 15ten September, 1879. (Signed) Ch. Zwilling, der General Secretar. Bartiar, der Präsident.' This hive was constructed of pine, with the frames across the entrance, and having arrangements for unlimited honey storing at the back and on the top, after the manner of Abbott's Combination hive.

Correspondence.

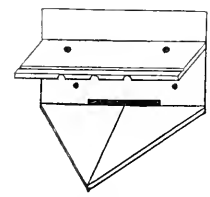
*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

HONEY SALESMAN.

Will you kindly allow me through your *Journal* to inform the members of the British Bee-keepers' Association, and also the members of the affiliated County Associations, that I, as the authorised officer or agent, have, with the concurrence of the Honey Sales Committee, made arrangements with some of the oldest and most respectable houses in London who are willing to take any reasonable quantity of good honey put up in a neat and saleable form? Comb-honey in sections or boxes of 1 lb. and 2 lb. each glazed, will command the best price and quickest sale. Any member wishing to sell his honey has only to communicate with me, and send a sample, carriage paid, in the form in which it is to be offered, stating the lowest price he will take, and the quantity he has to dispose of. As soon after the sale has been effected as possible, I will remit, by post-office order or otherwise, the amount realised less the very small commission of five per cent.—S. J. Baldwin, *Expert of the British Bee-keepers' Association.*

MOVEABLE PORCH.

In the December *Journal* I saw an illustration of a side entrance to hive. I see no utility in such, when so simple a contrivance as I adopt is to the fore. It checks draught, shades sun, keeps off snow and storm, and this simply by lowering a porch, made plain something like your No. 5, to lower set of screw holes.



The porch-piece has two or three small semicircular notches cut on its front under edge, and a groove immediately above, to prevent drip. When lowered, the front of the porch-piece rests on the alighting-board, so that only one of the screws (which are ring thumb-screws) need be turned home. Do you understand and approve? if so, pray adopt.—F. Parker, *Penrith.*

[The plan is an excellent one, and will be readily understood. We shall be glad to adopt it.—Ed.]

ECONOMY OF HUMBLE BEES.

In 1875 Mr. Buckland caused some astonishment among entomologists by sending, in October, two nests of humble-bees to New Zealand, with the intention of by this means introducing the genus into the colony for the purpose of fertilising the red clover (*Nature*, Oct. 14, 1875, p. 527; *Newman's Entomologist*, vol. viii. p. 304). The bees were packed in their own nests in two boxes and placed 'under the charge of a member of the New Zealand Council,' who 'was provided with every necessary for their welfare during the voyage.' In spite of this, the attempt, as was anticipated by those who were acquainted with the economy of humble-bees in general, failed (*Newman's Entom.* ix. 143). Now, however, a friend of the Editor of the *Bee-keeper* intends to send out the queens of two nests of the humble-bee, which he (the friend) has (*sic*) in his garden (*Bee-keeper*, i. 67); and though the existence of such nests in December is in the highest degree problematical, yet as others may be tempted to make a similar attempt next summer, and there seems to be a good deal of misapprehension as to the habits of humble-bees, perhaps a few words may not be out of place.

The nest of a humble-bee (*i.e.* of the genus *Bombus*) is, unlike that of the honey-bee, only an annual, and in this respect the economy of the 'genus approaches much more nearly to that of the wasp than to that of the honey-bee.' The late Mr. Frederick Smith, than whom no one was better qualified to express an opinion, says (*Newman's Entom.* iii. 240): 'The Bombi are among the first bees that are tempted forth from their winter hybernaculum, and those that first appear are the females that were reared in the nests of the previous year, and which have just awoke from the state of torpidity in which they have passed the winter months.' And again, p. 256: 'My own researches have led me to the following conclusions, —Humble bees have only one brood during the season: a single female that has passed the previous winter in a state of torpidity is the foundress of the colony; for some time workers only are developed in the nest, but, as autumn approaches, the other sexes appear. Towards the end of autumn all the community quit the nest: the females, being impregnated, to seek for some secure place in which to hybernate during the winter, the males and working bees to perish. . . . It has been stated that if a male Bombus once leaves the nest it never returns to it; but observation proves this opinion to be erroneous: the habit of *Bombus Latreillellus* is diametrically opposed to it. At that time in the autumn, when the males and females appear, if the burrow leading to a nest of this species be watched, a number of males will be observed flying about the entrance, and they will be seen occasionally to re-enter; the males are waiting the exit of the females; no sooner does one of that sex issue forth than a number of the males start off in eager pursuit of her.'

The same excellent observer in commenting upon Mr. Buckland's attempt, referred to above, and predicting its failure, says (*Newman's Entom.* ix. 15): 'On reading that the bees were packed in their own nests I conclude the species were one of the surface-builders . . . The species is not particularised, but I may, I think, safely conclude that it was *Bombus Muscorum* or *B. senilis*. The nests sent would, I presume, contain male, female, and worker-bees. My observations of humble-bees have extended over thirty-five years, and I believe that the impregnation of females never takes place in the nest; I also believe that it always takes place in the open air, and that no impregnated female ever returns to the nest. I therefore conclude that none of the females in the nests sent are impregnated, and I anticipate that the broods will perish on the voyage; or if by great care any arrive at New Zealand, it will only be a few unfertile females. Having expressed somewhat reluctantly my opinion —so adverse to the desired success—I will state what I believe to be the only plan that can be adopted with any hope of success. I should select two or three of the hardiest ones—such as *Bombus terrestris, B. lucorum, B. hortorum, B. subterranea*. In order to make the chance of success as great as possible, I should take care to send only impregnated females. These can now be obtained [December], all the humble bees having retired to their winter-quarters. A number of such females were required some years ago for scientific purposes: a collector was employed, who searched under my own instructions. The result was that he obtained in a few days over fifty females, all in a torpid state. My plan would be to get a number of such torpid bees, and, by some of the best known means of refrigeration, keep them in a state of torpidity during the voyage. This once accomplished, success would be certain. Humble-bees survive four or five months of torpidity, and they can now be exported in a much shorter time than five months.' The queens referred to were found, I believe, by searching on a gorse-covered common among the fallen spines of the gorse: I have myself found them at the roots of trees, while digging for pupæ of Lepidoptera.—H. Jenner Fust, Jun., *Hill, Falfield, Gloucestershire, Dec.* 30, 1879.

AN INFLAMMATORY PIPKIN, AND THE GOLD CURRENCY.

'Liguria the queen, in her haughty way,
Said, "Why do you smile, my goldsmiths, say?"
And they answered: "O queen, if the truth must be told,
The ring is of copper, and not of gold.'"
Longfellow, in the *Saga of King Olaf*.

Our Editor treats us to very useful information, and the last number of *B. B. J.* is extremely interesting. In the August number, 1877 (Notices to Correspondents), I read that 'it is impossible for bees to work, *i.e.* build comb in their suppers,' or elsewhere, unless they are artificially fed—I suppose with one of Maw's feeding-bottles, or Mr. James Bruce's pipkin. Again, in December number, 1876, a gentleman of Norwich asks this question: 'Can any one furnish reliable evidence of bees flying 1½ miles to gather money?' Had the Editor then possessed Mr. B.'s prescription, knowing the word which brings bees home (N.B.—He has

just been taught it by a lady from Notting Hill) he might have said—

Fly away home!
Fly away home!
The pipkin is hot—
And the gold has just come.

The alchemical skill required to perform the operation of transmuting vegetable or animal secretions into gold is no doubt very great. You must be careful of your fingers while removing the inflamed pipkin from the fire. Then scraping the pipkin, after having burnt a pound of it, seems difficult. I can quite understand the metal being parted by electricity. My gold has often gone off in that sort of a way, and I have felt a queerish shock at the same time, but I don't remember whether I smelt the brimstone or not. I can also understand J. B.'s seeing the tiny grains of gold on the leaves of flowers with his naked eye. I have often seen that myself, and also on the wing-cases of bee-tles and some other insects; and when I was a nice little boy, I used to pick out lumps of coal with shining gold upon them, but interested parties, for their own base and sordid purposes, used to cram me with its being only sulphur, combined with a common metal called iron. So I never made a heap of money from it; but I now intend to buy at once the wax, and the pipkin, and the melting-pot, and the potassa, and the soda, and the galvanic battery, and the tinfoil, and the salt, and the crucible; and give our Editor half the gold, and subscribe to the 'Treatise' by 'One of the Authorities,' as soon as I have got the metal extracted.—RAVEN, JUN.

HONEY AS MEDICINE.—THE VALUE OF MEAD.

According to promise I write to tell you that some years ago my health began to fail, and I very slowly got worse. I declined for about three years before getting to my worst, and the chills used to run all over me. I used to feel the cold so much that I dreaded the winter coming; my muscles used to twitch and drag in all directions, not all over me at once, but in different parts at different times. The last part of the time above named I lost three pounds weight every week for a length of time. I lost my colour, flesh, and strength, so that I could scarcely walk at all; everybody thought I could not live, neither did I wish to live in such a weak state. I could not eat any meat, nor take any strong drink. I had to be clothed in flannel all over me; no one knows how I felt the cold. I was taking medicine all the time; my doctor told me I was suffering from a diseased stomach. My living was light puddings and spoon suppings. I could tell you more, but I think I have told you enough to enable you to see what a weak state I was in. During that time I had thirty gallons of mead made from sixty pounds of honey, and when it was twelve months old I began to take half a wine-glass-full of it twice a-day diluted with as much water. In about a week I had a glassful of it with water, and I began to feel stronger. I next got to a quarter of a pint, and then to half a pint with water, still gaining strength, and then I had it neat. I began to drink it in September. I drank as much of it as I could to be comfortable with it. I still gained strength. When it was colder weather I took more of it, as I did not feel the cold half so much. It used to warm me, and made me feel so much better and stronger, and then I began to gain flesh as well as strength. I've said many a time that the mead had done me more good than all the medicine I took all that time. I would recommend it to all who have diseased stomachs or weak constitutions. I can now stand hot and cold weather, eat and drink almost anything, and take my share of work, let it be what it may, whether it be light or heavy. I hope you will make my case known in your *Journal* to all who read it. I hope others may receive as much comfort from mead as I have done. Honey is used by many about here for bad colds and coughs and sore throats, some will eat a small portion of it, and rub some on their throat outside; they say there is nothing so good for that purpose as honey. I have not tried it that way myself; they use it just when going to bed.—R. CHAPMAN, I *Bee Farm, Newton, near Kettering, Northamptonshire.*

P.S. I cannot tell you how much mead I could have sold. I gave a great deal of it away, some were offended because I would not sell it to them, I dare not as I had no license. I think the Government ought to grant a small license for all who keep many bees to make up and sell their own mead, as I believe it to be a good medicine for many.

Honey is very scarce about here. I hope we may have a better season next year.

INTRODUCTION; OR EARLY HISTORY OF BEES AND HONEY.

No. VI.

(*Continued from page* 227, *Vol. IV.*)

The French natural historian, M. Réaumur, stands prominent among the students of entomology, for the unsurpassed enthusiasm and accuracy with which he has investigated some of its most intricate parts. To him the genus *Apis* is under greater obligations, perhaps, than to any entomologist, either of ancient or modern times. See his immortal work, *Mémoires pour servir à l'Histoire des Insectes*, in 6 vols. 4to. 1732–1744.

About this period also flourished the great, the illustrious Linnæus, whose labours diffused light over every department of natural science, and have justly caused him to be regarded as one of its brightest ornaments. He has generally been considered as the founder of the artificial system of arrangement; but a very near approach to it was made by that brilliant constellation of naturalists whom I have enumerated as having flourished at the close of the seventeenth century, and who may probably be regarded as having paved the way, and prepared materials, for the formation of his more perfect system.

Afterwards appeared the works of the celebrated M. Bonnet, of Geneva, in 1745, the admiring correspondent of Réaumur, and the patron and friend of Huber. This great physiologist became addicted

to the study of entomology before he was seventeen years of age, from reading *Spectacle de la Nature;* and his decisive experiments upon Aphides do him the highest credit. His works are universally admired for their candour and ingenuity, as well as for their manifest tendency to promote the happiness of man, by exciting in him the love of knowledge and virtue.

The Rev. John Thorley's excellent work on bees, *The Female Monarchy*, appeared in 1744, and was succeeded by the Rev. Stephen White, who invented the collateral bee-hives in 1756.

The Society for the Encouragement of Arts, Sciences, Manufactures, and Commerce, in England, offered 400*l.* to encourage bee-keeping in 1765 (a very large sum in those days). A premium of 5*l.* was given to every person who had in his possession on February 1st, 1766, being his own property, any number of stocks of living bees, in hives or boxes, not less than thirty; and also a premium of 5*l.* to every person who shall take ten pounds of merchantable wax from any number of stocks of living bees, in hives or boxes, who shall preserve their lives till the 1st of March, 1767; but in case there shall be more claimants, then the sum of 400*l.* shall be distributed between the candidates, in proportion to the number of claimants.

This gave such a great impulse to bee-keeping, that I have a list with the names of the authors of no less than forty-two works written on bees during the next six years, amongst whom was the celebrated Wildman, 1768; who performed numbers of wonderful feats with bees that have never been equalled in any country up to the present time; for instance, when he appeared before King George III., standing upright on horseback, with a swarm of bees suspended in garlands from his chin, like a great beard, and after transferring them from his chin and breast to his hand, stretched out to full length, and then on firing a pistol, the bees all swarmed in the air and went back to their hives, with numbers of equally wonderful performances. The following is a copy of his advertisement:—

'June 20, 1772.—Exhibition of bees on horseback! at the Jubilee Gardens, Islington, London, this and every evening, until further notice (wet evenings excepted). The celebrated Mr. Wildman will exhibit several new and amazing experiments, never attempted by any man in this or any other kingdom before. The rider standing upright, one foot on the saddle and one on the neck, with a mask of bees on his head and face. He also rides standing upright on the saddle with the bridle in his mouth; and, by firing a pistol, makes one part of the bees march over the table, and the other swarm in the air and return to their hive again, with other performances, too tedious to insert. The doors open at six, to begin at a quarter before seven. Admittance: Box and Gallery, two shillings; the other seats, one shilling.'

These performances were considered at that time as feats of legerdemain or witchcraft, but the secret of Wildman's skilful manipulation with bees is well understood now; it consisted in a careful holding and disposal of the queen, together with confidence in the generally inoffensive disposition of bees. Dr. Evans thus speaks of Wildman's feats:—

'Such was the spell which, round a Wildman's arm,
Twin'd in dark wreaths the fascinated swarm;
Bright o'er his breast the glittering legions led,
Or with a living garland bound his head.
His dextrous hand, with firm yet hurtless hold,
Could seize the chief, known by her scales of gold;
Prune, 'mid the wondering train, her filmy wing,
Or o'er her folds the silken fetter fling.'

—William Carr, *Newton Heath Apiary, near Manchester.*

(*To be continued.*)

CYPRIAN QUEENS.

On the arrival of last month's *Journal*, I opened it with some expectancy, for I hoped, in spite of my unsuccessful inquiries, to find that some at least of the 'Cyprian' bees we have hitherto seen in this country had been imported from Cyprus direct; but I was disappointed to find Mr. Gravenhorst's letter only. This gentleman, whom we had the pleasure to see amongst us a few months since, is justly celebrated in Germany for his 'Bogenstülper,' or straw hive, with moveable frames, and he is also entitled to our gratitude for his introduction into this country of his home-grown Cyprians. The statements in his letter, however, would probably be as new to Mr. Cori and Count Kolowrat-Krakowsky, as his method of spelling their names. From the letters of these gentlemen now before me, I believe I may say with certainty that the discovery and introduction into Germany of this new breed of bees is due to their united efforts. Mr. Cori, after many years of experimental importation and breeding, having suggested the exploration of Cyprus for a new race of bees, the Count entered fully into his project, and assisted him with the large means required for such an undertaking. Mr. Cori never fails to give full honour to the Count for his share in the enterprise, and the Count is not less backward on his side.

I hope shortly to give you a full and most interesting account from the hands of these two celebrated apiarists of the progress of their efforts to discover where the best breed of bees might be found, and I may add to same, a description of the Count's apiary, which is one of the best-conducted in the world.

It is a great pleasure to me to see how eager most honey-producing nations are to possess Cyprian bees—a breed which is considered by those best qualified to judge to be superior to the Ligurians. Italy has just successfully imported eight colonies, and America has sent a gentleman over to Europe with the express object of obtaining and bringing back some Cyprian queens.

One word in conclusion. Allow me to caution your readers against calculating the relative value of Cyprians by the brightness of their colouring. With this race of bees a specially high colour, similar to that possessed by some German Cyprians, generally means cross-breeding and consequent irascibility of temper, such as has been the distinguishing feature of some of the Cyprians that have been exhibited in this country. The pure breed, when in my hands, was as quiet as could be, and I did not need to use any veil with them.—J. P. Jackson, *Brigadier Hill, Enfield, January* 20, 1880.

BEES DYING.

A neighbour has discovered that out of thirteen stock nearly all were dead, although on investigation, the hives which are straw skeps, were found to contain a fair quantity of honey. Can you explain this?—E. S.

[We may not be able to give the precise cause of death in each case, but should refer it to queenlessness, foul brood, or early discontinuance of breeding. Examine the combs well, and see if the cells contain any rotting matter or dead larvæ. Is the honey sealed? Sometimes bees perish in very cold weather through being unable to pierce the sealed cell to get at the sweets: sometimes, also, because it has solidified.—ED.]

IS SYRUP FEEDING WRONG?

Will you please answer a very important question regarding feeding bees with syrup, as I am rather discouraged by seeing a letter of 'A Lanarkshire bee-keeper,' in a specimen copy of the *Bee-keeper*, No. 2, saying that syrup is not fit for bees, nor for raising young bees; he further states he had a number of his hives that died through constitutional weakness, also the stocks affected were those that had sugar-fed and sugar-bred *Queens*. I am about commencing bee-keeping, and desire to obtain a little knowledge of their habits. The bees in our locality will require feeding at certain times, also feeding up for winter.

Mr. Editor, do you think, giving the bees sugar-food, instead of the natural, creates constitutional weakness?

If you will answer this question through your valuable *Journal*, I should feel obliged.—ROBERT J. TOMLIN, *Green Street, Victoria Park*.

[Pure sugar syrup is, without doubt, the best artificial food for bees, but it must be given discreetly. We have over and over again cautioned our readers in this respect, and urged that in bad years feeding should be begun sufficiently early to enable the bees to store and seal it in their cells before the cold weather sets in. In a bad season like the past, bees cannot collect honey enough to enable them to keep up their numbers, to say nothing of increasing and swarming; and in such case what is their owner to do? Can he provide honey for them? And if he could, will the 'Lanarkshire Bee-keeper,' or any other bee-keeper, tell the world in what respect honey and sugar syrup differ except as regards flavour? Our best chemists and analysts cannot tell the difference between flower honey and sugar honey, in a chemical sense; all they can say is, that the sugar honey is deficient in flavour or aroma, and that it is 'poor,' and so on. Constitutional weakness in bees is not the result of sugar-feeding, but is brought about by not feeding the bees at the right time. Those that have been getting a hand-to-mouth living through a bad summer, and are in autumn called upon by their owner to store a quantity of liquid food in a given time, would be 'cast-iron' bees if they did not become constitutionally weak, and die during a succeeding hard winter, in which their store remained unsealed, unevaporated, and probably sour from exposure. We saw the evils of late rapid feeding many years ago, and first pointed them out in correspondence with the *English Mechanic and World of Science*, as may be gathered from our leaflet on feeding, given away for a halfpenny for cottagers' benefit, and did our best to teach the world to eke out the bees' income in bad times by slow continuous feeding, to enable them to store and seal their winter store, and to keep up breeding until the usual time of cessation, the end of September, or thereabouts, and for stimulative purpose in spring, and we are prepared to stand by and defend the position we have established against all opponents. The 'Lanarkshire Bee-keeper' argues from the wrong end: he finds the bees constitutionally weak in seasons when but for feeding they would have long since died outright, or probably never have been brought into existence, and then blames the food. *Feeding bees is an art*—five words that show a reason for much ill success in bee-keeping, for few will take the trouble to acquire it. And where our Lanarkshire friend can find one case of death from giving sugar syrup in due time, we will produce evidence of a thousand stocks perishing through constitutional weakness brought on by sheer starvation.—ED. *B. B. J.*]

PAPER FELT AS AN EXTRA COVERING FOR HIVES.

Allow me through your *Journal* to note, for the benefit of those who will try it, that paper felt (or which is better known in the trade as 'underfelt'), if roughly painted, will be found a cheap and serviceable covering for hives when placed in the open, and require (as most hives do when so placed) extra protection. I am, further, led to bring to the notice of bee-keepers this felt as an extra covering, from the fact that one of our leading and most advanced of our apiarians (and who does not speak without his book) has spoken favourably of it; and I venture to say, when its value as an extra covering is once known, the objectionable rubbish which we see so often used for the purpose, and which really tends to keep the hive damp and cold rather than dry and warm, will no longer be used, but will be consigned to what is termed 'the Devil,' to be transformed into that which I am pleased to recommend (with the addition of paint), as a useful winter covering—Paper Felt.—R. R. GODFREY, *Grantham*.

P.S. I enclose a pattern of the felt. It can be had retail from most large furnishing houses, 36 inches and 72 inches wide.

AIDS TO BEE-CULTURE.

We have received a proof copy of a small work entitled *Hints to Beginners in the Study and Practice of Apiculture*, by the Rev. H. M. Stallybrass, of Wirksworth, price 2½*d.*, or 1*s.* 6*d.* per dozen, post free, and gladly give it publicity. It contains a list of standard works on bee-keeping; *Who should Keep Bees, Where to Keep Bees, How and When to Begin, How to Make a Hive*, and a directory of hive and bee-dealers. We take leave to quote the first chapter, and for the benefit of beginners should like to quote the whole, but that would be unfair to the writer. What we most regret in reading it is that there is so little of it: perhaps the encouragement it is sure to receive will induce the writer to amend that defect:—

'*Who should Keep Bees.*—A certain personal aptitude is necessary for bee-keeping, as for every other pursuit. If a man is an enthusiastic lover of Nature, a careful observer, a patient worker, a perfect master of himself, deliberate without being dilatory, full of resources and ingenuity, and ready for emergencies, he is the type of man almost certain of success. If in addition to these qualities he is of a mechanical turn of mind, handy with tools, and full of invention, he is likely to make bee-keeping profitable. To the irritable, nervous, vacillating, and fickle, I would say—DON'T.

'For ladies of limited means, for country ministers, for retired gentlemen, and for the village carpenter, bee-culture offers peculiar attractions. Even if the profits were *nil*, the interest this pursuit awakens would be in itself a rich reward. "Show me a scientific apiarian," says Professor Cook, "and I will show you an enthusiast."'

Echoes from the Hives.

Chester-le-Street.—'I wish you a happy New Year, and hope the bees and *Journal* will do well. The stock I headed with the Italian queen, Oct. 10, has now many Italian bees, but the strangest part is a few dead Italians on ground in front of hive, and no blacks. I can only account for it by the more active Italians venturing out and starving to death, they have plenty of food and pollen stored, and the queen must have been breeding all winter (even since she came). The mortality is only about two dozen or so, only no blacks amongst them, and one would have naturally expected to see more old than young bees dead. The Italians visit the other hives freely, but no stranger is allowed in their home. The long severe frost prevented a cleansing flight, and the few young bees may have died from abdominal distension, as one of the dead was just swollen as if from that cause.—W. CRISP.'

Glasgow.—'Your post-card to hand, there is not a pound of heather honey to be had, far less cwts. I know nobody that has any.—J. B. H.'

Wokingham, Berks, Jan. 22, 1880.—It grieves me much to see how great has been the havoc made by the season of 1879, especially as it so deeply concerns so many of our poorer neighbours. No supers, in fact no honey at all, and now death and starvation is doing its worst with too many. However, I am glad to find that you have courage enough to say 'FORWARD!' for 1880. I trust your motto will be ours. Wishing you a prosperous and happy New Year.—I. G.

Queries and Replies.

QUERY No. 331.—I found an Italian queen on the ground a few weeks back. Is it likely to be one that I introduced at the end of July? Or is it possible that a young queen was hatched at the end of the breeding season, and then turned out on the first favourable opportunity? It was a fine warm day when I found her, and many bees were taking a flight.

REPLY TO QUERY No. 331.—It is probably the queen that was introduced, but may be one of a number of young ones raised after she had departed. We fear it was the former, and that the hive is queenless. It may, however, be a queen killed on endeavouring to unite her followers to the hive in question: such cases do happen in starvation times.—ED.

NOTICES TO CORRESPONDENTS & INQUIRERS.

YOUNG B.—If the Ligurian queen survive the dangers of introduction and wintering, she will begin to breed about the end of February; and if all goes well the blacks will have been superseded by about the middle of April. Four hives at the corners of a parallelogram 7 ft. by 5, would be far enough apart; but it would be better if their entrances faced outwards, *i.e.*, away from each other.

ROCHFORD.—The Stewarton Hive was fully described in Vol. I. of *B. B. Journal*, and the 'system' is extant in a leaflet, free from this Office for penny postage stamp. The origin of the Stewarton is rather obscure, but its merits have ready championship in Scotland—particularly in the south. After a fairly good summer, the Glasgow grocers make their windows resplendent with the glitter of beautiful Stewarton supers, wrought and finished to perfection.

*** *The* 'Annual Report' *and the* 'Quarterly Conversazione of the British Bee-keepers' Association' *have occupied so much of our space that we have most reluctantly been obliged to postpone, till next month many interesting communications.*

CATALOGUE OF HIVES, &c., to be SOLD by AUCTION, on WEDNESDAY, MARCH 24th, at 12 for 1 o'clock, at FAIRLAWN, SOUTHALL.

Five minutes' walk from the Great Western Railway Station.

LOT
1. Two Bar-frame Hives, for collateral use; twelve large frames.
2. Two Cottager's Woodbury Hives, ten frames.
3. One Hooker Hive, 1875.
4. Two Original Cottager's Hives, combination principle, small frames.
5. Two Cottage Woodbury Hives (no legs), ten frames.
6. Two Hives on legs, Abbott's Standards, eight frames; pattern 1874.
7. One Lanarkshire Hive (unused).
8. One Handsome Rustic Berkshire Bee-shed, to hold two hives (nearly new).
9. Two Berkshire Hives, and four Supers to ditto.
10. Four sets of six new Sectional Supers.
11. Three sets of seven each, not new, ditto.
12. Six Abbott's 1*s.* Feeding or Honey Jars.
13. Two Hives, similar to Lot 1.
14. Two Combinations, similar to Lot 3.
15. Two Standards, similar to Lot 6.
16. Four sets of Sections, similar to Lot 11.
17. Two Hives, similar to Lot 2.
18. Twelve Abbott's 6*d.* Feeding or Honey Jars.
19. Four sets of six Sections, not new.
20. Five Honey Jars, and Sundries.
21. One Stock of Bees in Bar-frame Hive.
22. One Bell-glass, and six Stoppered Bottles.
23. Two Poole's Prize Feeders, and three Plum Jars.
24. Six Abbott's 6*d.* Feeding or Honey Jars.
25. Two Hives, similar to Lot 1.
26. One Combination, similar to Lot 3.
27. One Combination, ditto, with Bees.
28. Four sets Sectional Supers, similar to Lot 19.
29. Two Hives, similar to Lot 2.
30. Two Standards, similar to Lot 6.
31. Eight Sections with glass ends.
32. Eight small Honey Boxes.
33. Four sets of six Sectional Supers, similar to Lot 19.
34. One Hive, similar to Lot 1.
35. Two Cottage Woodburys, similar to Lot 5.
36. Six Abbott's 6*d.* Honey Jars.
37. Four large Honey Boxes.
38. Two large Nucleus Hives.
39. Three Woodbury-sized ditto.
40. Two half-sized Standard ditto, two ditto Woodbury.
41. One Woodbury Hive with Bees.
42. One Standard Observatory Hive, one Frame.
43. Cottage Woodbury, similar to Lot 5.
44. Four Chaff Cushions, wood frames.
45. One Woodbury Observatory, one Frame.
46. Two Crown-boards, wood and straw, and two slide Dividers.
47. Nine Crown-boards, and Sundries.
48. One Stock of Bees in Bar-frame Hive.
49. One Woodbury Observatory, one Frame.
50. Eight round Floor-boards, one square ditto.
51. One Wax Melter, one Syrup Can.
52. One Neighbour's Improved Cottage Hive.
53. One Murphy Centrifugal Honey Slinger, with Treacle Valve, all complete, best pattern, equal to new (imported).
54. One crate of Sections, two Supers.
55. One Stewarton Hive, three Body-boxes, one Super.
56. Three Hexagonal Hives. One Octagon ditto.
57. Two Skeps, five straw Supers.
58. One large Crate of Supers.
59. Two double Wire Frames, for Slinger.
60. Thirteen zinc Covers for straw Skeps.
61. One Desborough Observatory Hive.
62. Lot of Sundries.
63. Sundries.
64. Sundries.

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W. F. Clutton

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 83. Vol. VII.] MARCH, 1880. [Published Monthly.]

Editorial, Notices, &c.

MARCH.

The past month, though it showed an improvement on the weather in a general sense, maintained its reputation as a rainy one; nevertheless, bees had many opportunities for flight, and there were frequent chances for overhauling them, which the wise did well in embracing. The peculiarities of the season—a severe winter, following an unprecedentedly cold summer, made careful inspection very desirable, and gave interest to the state of the hives, which, in a less anxious time, might not have been called forth.

If bees are valuable property—a proposition few will attempt to deny—then the thanks of the country are really due to those who have promoted their advanced culture, for, but for the care, thought, and wisdom evinced by the school with which we and the majority of our readers are happily identified, bees would have perished almost entirely. From all quarters comes the cry, 'The cottagers' bees, hereabouts, are all dead!' They would not be persuaded to feed them because they had been taught to kill the weak and the strong, and save only the mediocre; and feeding being therefore no part of their method, and their stocks being far below mediocrity, those that they did not destroy have died, and they, as a class, are left bee-less. Surely if there ever was reason in asking for State aid, it is more than ordinarily shown in the request which the British Bee-keepers' Association will be presently urging upon the Government in this particular, when they ask for the appointment of a qualified public teacher of bee-culture in connexion with the department by which our various schools are controlled. The idea, latent in many minds, and sometimes feebly expressed, has taken earnest form in the proposition brought forward by the Rev. E. Bartrum, of Berkhampstead, at the annual meeting of the British Bee-keepers' Association on the 18th ult., to the effect that 'it is advisable that a Professorship of Apiculture should be established in connexion with the Science and Art Department at South Kensington, and that the Committee of the Association be requested to take such steps as shall seem expedient with a view to its establishment.'

The views held by Mr. Bartrum will be found in the report of the meeting on another page, and his arguments will commend themselves by the sound common sense they exhibit, and the closeness of their application. No subsidy is asked for, but in view of the terrible losses, through ignorance, that annually occur, the country at large has a right to claim for bee-culture that its rudiments shall be taught in our schools, to ensure which a full knowledge of the economy of the bee-hive should be a *sine qua non* in all public teachers. If all interested would make the question prominent at the next and future parliamentary elections, good would necessarily ensue, and the claim advanced might one day be recognised.

USEFUL HINTS.

Stimulative Feeding.—During the present month the early spring flowers will make their appearance, and the bees on fine days will show a restless desire to obtain from them their coveted secretions. Then it will be fair to consider that the time has arrived to aid the bees, to supplement the natural product of the season with such foods as are known to be stimulative to them, that they may not depend entirely on the scanty supply which the fitfulness of the weather may make too irregular to be of service in promoting the production of early brood, and the forthcoming of young bees in replacement of the aged and worn. We need not dwell on the importance of this proceeding, as it is now acknowledged generally to be correct in principle, but we feel bound to

advise caution in its adoption. That which wisely given as a healthy stimulant may, improperly applied, act as a poison. In stimulative feeding to promote breeding, there is danger in giving too much; what is required is that there should be a constant supply, adequate to the hand-to-mouth requirements of the brood nest, and no more.*

Artificial Pollen.—When the crocuses are in bloom, artificial pollen may be safely administered. The usual plan is to fill an old skep with wood-shavings, those of yellow deal are the best, and sprinkle pea-flour, such as is used in making pea-soup upon them. Three or four sticks stuck into the ground around the skep will afford support to a board or old tea-tray which should be arranged to cover it, and keep out rain (and wind too, if necessary), yet give easy access to the bees. If they do not readily take to it put some of the flour into the cup of the crocus-blooms, and set the skep near by, when, if not eagerly frequented by the bees, it may be inferred that the flour is stale, or that they have a better source of supply, a state of things scarcely likely in such a season as the present. There are many other ways of offering the pollen, and any way that is successful will answer the purpose, the above is, however, the most simple plan we know of, and is within the reach of all.

The method described by Mr. Cheshire of mixing the artificial pollen with syrup and giving it to the bees, we prefer not to recommend broadcast until it has been well proven. Reference to his successful management with Ligurian bees, p. 195, recalls his non-sueeess with pollen paste administered to one of the several swarms there mentioned. He says—'The fourth [swarm.—Ed.] was reserved for experiment, and had four different queens during the summer, and all the brood was at one time destroyed in an attempt to feed with artificial nitrogenous food, which it was hoped might answer as a substitute for pollen.' This nitrogenous food was made of syrup and 'artificial pollen,' which the bees themselves took into their hive from the top, and stored in their cells, and which fermented when fed to the brood, and burst off the cell caps when they were sealed over.

So long ago as September last we received from a correspondent at Baldock a notice of a new system of bee-feeding practised in Germany, which we promised to make public when it would be of most interest, and here it is:—

'At the last Congress of German apiculturists, M Waggands, of Eselbad, called attention to a new system of feeding bees in early spring, in order to excite the queen to lay, and to supply the place of pollen. He mixes a pound of flour with a little slightly salted water, and adds to this paste about three pints of water, in which four pounds of sugar have been dissolved, and, by boiling the mixture in a little extra water, obtains a kind of paste, with which he fills the drones' cells. In this manner he supplies an admirable food for his bees in the early season, when the cold does not permit the bees to go abroad in search of water and pollen. In connexion with this subject, it is now said to be practically demonstrated that salt is absolutely necessary to the well-doing of bees, especially at spring time.'

Our remarks, preceding this quotation, render further observation unnecessary; we hope, nevertheless, the mixture will be fairly tried.

Overhauling.—A thorough examination of stocks should take place on the first fine day, and all *impedimenta* cleared out of the hive. Floor-boards should be cleansed and dried thoroughly if damp. Mouldiness, wherever it exists, should be destroyed by washing with salicylic solution and drying, the combs if affected, being removed for the purpose. Quilts would be better for renewal, those removed being subject, for preventive reasons, to disinfection, washing, and drying for future use. Hair cloth is the best material to lie next the frames. It is light, porous, warm, and easily cleansed, and is comparatively indestructible. Moreover, bees can feed through it.

Purchasing Stocks.—Don't do it! It is safer, cheaper, and far more satisfactory to purchase swarms, and in these days of comb-foundation swarms may be converted into stocks in a month, and be ready themselves for swarming. Don't be hasty in obtaining them either unless prepared to feed largely. It is better to wait until June for a good swarm and good weather than to have an April one that cannot stir abroad to get a living. Stocks may contain the germs of disease, the combs may be old, and comparatively useless, there may be too much drone-comb, too few bees, and very little brood, or they may be queenless, which a novice would not discover, or their journey may cause them to suffer from disease or injury; all of which will be avoided by purchasing swarms in their season, and using comb foundation for their guide and help.

Entrances.—These should be regulated to suit the varied necessities of the colonies, some of which may require them to be small, for protection from cold and robber bees, while others may need the full opening. Care should, however, be used to protect them from glaring light, and driving rain or snow. Perforated zinc makes an excellent alighting-board, always free from wet, and never too cold, when the weather is sufficiently warm for bees to fly.

Queenlessness.—When examining stocks, if any be found queenless, it will be better to unite them to others with queens, than to incur ex-

* The means of feeding with syrup is too well known to need repeating here. Our leaflet on the subject may be had post free from our office for a penny stamp.—Ed.

pense and trouble, often wasted, in endeavouring to re-queen them, since aged bees often refuse a new sovereign. To effect the union with the greatest ease, bring the stocks to be united together by daily gradations, and mount the queenless on the top of the other, with perforated zinc between; plug the entrance of the upper one, and drop some chips of barley-sugar through its feed-hole, that they may fall on to the zinc, and both sets of bees be able to reach them. In three days make a hole in the zinc, or slip it aside, so that the bees of both hives can gradually fraternise, and by-and-by remove the top hive and combs for further use, brushing all the bees into the lower one. This method of uniting is attended with the minimum of danger and trouble.

Queen Wasps should be caught and killed wherever found. The weather of last summer has made them very scarce, and until we find out the benefit to be derived from them, we trust they will be made scarcer.

Foul Brood.—If any be discovered, refer to former pages, Jan. and Feb. If 'stamping it out' be resorted to, take care that the parts destroyed are effectually disposed of. We once advised the destruction of a filthily foul skep, and it was tied up and thrown into the canal near by. A few days afterwards some fishermen hooked it and landed it, and cut it up to get at the little honey in it. The police thought it had been stolen from our apiary, and brought it, in our absence, to our bee-garden, where they left it; and when we got home, they declared the bees had come to life again—it was swarming with our bees, and we had to pay the penalty due to carelessness.

Bee Plants.—Planting and sowing should now be provided for, if not actually proceeded with. The frost killed our early wall-flowers, that ought to have been now in bloom, but younger plants, of which we have many thousands, have survived, and will come in later. Palm-bearing willows look grand, and will be ready for Palm Sunday; Crocuses coming up by thousands; Arabis in any quantity, and other desirable things in prospect. The seed of Limnanthus Douglasii, sent to us by Mr. Ingram, of Belvoir, came up well, but that which we sowed in pots as a precautionary measure has done better, though standing out of doors unprotected.

Hives for Use.—Hives and implements should now be purchased, to prevent disappointment. Makeshift hives are very cheap, and handy in emergency, in fact are indispensable for those reasons in every apiary. Nothing is more vexatious than to find a swarm of bees in a tree, with nothing handy to put them into, and while looking for a vessel, to see them fly away. Last season we found one in a hedge some distance from our bee-garden at near midnight, a dog having attracted attention by his barking. We felt all the richer for finding them, though probably they were already our own, yet had they flown away we should not have missed them from amongst so many, with swarming going on every day in one form or other.

CYPRIAN BEES.

We have been favoured with an afternoon visit by Mr. D. A. Jones, one of, if not the most successful honey grower of Canada, and Mr. and Mrs. Frank Benton, of the Michigan State Agricultural College, U.S., on Wednesday, the 11th ult., on their way to Cyprus in search of Cyprian queens. They purpose to collect all they possibly can for immediate export to America, and to establish a queen-raising apiary to supply the world, or at least the bee-keeping part of it; and unless better facilities offer we shall have the pleasure of resting, flying, and repacking their consignments. Mr. Jones is a thoroughly practical bee-keeper, bee-farmer we ought to say, fully up to the times in everything connected with apiarian work; and in Mr. Benton he has an able scientific helpmate, whose knowledge of entomology will perfectly supplement Mr. Jones's efforts, and leave no doubt as to the truth regarding the bees in question. Mr. Benton translated for the (American) *Bee-keepers' Magazine* in 1876 a series of articles on Cyprian bees by Mr. Cori, Director of the Chancellorship of Bohemia, written for and published in the *Der Bienenfreund*, which are highly interesting, and which he has placed at our service. For the Cyprians it was then claimed that the worker progeny of young queens of pure descent was not affected by their having mated with black drones. The workers were said to be only yellow bees.

BEE-KEEPING AND FARMING.

(*Continued from page* 195.)

That our previous remarks on this subject have not been without interest to many of our readers, we have numerous evidences, not the least of which is the number of inquiries whether we will supply swarms of bees at the price we named as that at which they might readily be purchased by farmers for themselves, the writers forgetting that we especially cautioned them against employing the services of a middleman, and therefore we have been compelled to give a negative reply. At the same time we fearlessly assert that as a rule 10*s.* is the current value of spring swarms amongst our rural population, and 12*s.* 6*d.* the usual price of stocks from October to March. Our figures are facts in our own experience, but our

time and the costs and risks attending their purchase and transit, and the repacking for sale, make it impossible for us to retail them at anything like the same price. It is probable, that after so very bad a summer, there will be a scarcity of bees, indeed it is more than probable, since so many of the 'cottager' class have lost their bees altogether; but that does not adversely affect the principle of our calculations, for if bees are scarce and more valuable this year than last, their products will be enhanced in a corresponding degree, and their cultivation will be more remunerative. Our commendatory opinion of bee-keeping as an '*aid to Farmers*' is evidently not shared by a correspondent to the *Farm Journal*, in which paper on 7th ult. there appeared over the name of Joseph Trumper, of Maidenhead, who, under the heading indicated, has ventured to condemn bees utterly, though on behalf of pigeons he scarcely knows how to say enough. We quote of the former :—

'Continuing the subject of remedies for the depression, I shall at this time deal only with live stock; but, in a subsequent letter, I will endeavour to deal with more general subjects. Now, as to bees, of which much is written, I cannot commend it very highly. They are an immense deal of trouble, if kept extensively; and if only one or two hives, of course they are not worth consideration. The honey, too, is far from being a saleable article, except, of course, to the ever-present middleman, and his prices are never tempting. They are also very unpleasant creatures to have to do with; and I once knew a young man, an extensive apiarian, who lost his life through their continued stinging. With one more piece of advice, I must close these remarks; viz. Never give either very high or very low prices for stock of any kind. Either will prove a vexation—the low-priced ones are nearly sure to be diseased, or in some way unprofitable; and the highly-valued ones are so often coddled and fussed as to fall away when put on ordinary keep. Such things often look most tempting, but are seldom bargains.'

And of the latter,—

'Proceeding next to pigeons, how strange that so few should be kept! No feeding required, except the rubbish thrown to the fowls; no hunting up eggs; no cooping broody hens; no expensive fowl-house to be built; in short, a considerable income without any trouble worth the name. I have just sold all I had for sale at 12*s.* per dozen, and could easily have sold ten times the number if I had possessed them. One season I sold thirteen dozen, and had then numerous applications for more, and even now have my whole stock bespoken for next Christmas. The gable of a barn, the roof of a shed, a part of a stable loft, how easily is it fitted up! A few nesting boxes, a few holes cut for entrance, a few pairs of young ones to start with, and the thing is done; all the mating, nesting, feeding, and rearing, the pigeons do for themselves, and require no further thought or care. Their guano is very rich. On one occasion, when about to sow some peas, I found that a piece of the field had not been dunged; so, sending home for a cartload of the pigeon-house deposit, I had it sown with shovels just before the harrows. When the peas grew up, I could see to an inch where the improvised guano was sown, by the increased bulk of the crop.'

We scarcely suppose such opinions will weigh with thinking minds, nor can we admit that they have any value in argument. If they have, wild pigeons should be encouraged in every possible way, and farming should be tabooed because horses kick and bulls gore their keepers to death. We would fain believe, however, that Mr. Trumper's articles became 'mixed' by the printers, and that he is made to say of pigeons what he meant of bees, and *vice versâ*, or the observation that 'highly-valued ones are so often coddled and fussed as to fall away when put on ordinary keep,' would be utter nonsense. In the report of the annual meeting of the British Bee-keepers' Association, there will be found some observations by the queen-bee of British apiculture, the Baroness Burdett-Coutts, President of the Association, who in a few well-considered words commended the keeping of bees as a desirable and helpful industry in amelioration of the distressful condition of Irish farmers and the peasant population generally, and there is hope that those in authority will move towards its introduction as such; and if it be good for Ireland, why not for other portions of the United Kingdom?

In our remarks we have studiously avoided statistical references and calculations of a sensational character, and have arrived at the very moderate conclusion that ten swarms of bees will in a less than average season be in a fit condition for wintering as stocks at a cost of ten guineas, and looking at the possibility of casualties we will suppose that twenty per cent of them die* or become useless, which will leave us with eight only in May for profitable working, a very moderate computation all bee-keepers will acknowledge. There will be also two empty hives value 10*s.*, which sum we will say has been invested in sugar, and the syrup formed thereof judiciously administered to stimulate the stocks to early breeding, and that they are consequently in swarming condition by the first of June,† a moderate computation, also. To prevent, however, the suspicion that we are begging the question, we will take it that only six of the eight send out swarms, and that four only of them each send out one cast or after-swarm, entailing the outlay of 50*s.* for hives, there will then be eighteen stands of bees‡ for 13*l.* invested. We have not yet cal-

* This is a very high estimate supposing the bee-farmer to understand the common principles of the art in question.—Ed.

† We have put the case, hitherto as it would commonly occur to the ordinary expert, and not taking into account the great advantages which would arise to a farmer's bees if he would cultivate such crops as bees exult in.—Ed.

‡ Always supposing the bee-farmer to be fairly expert, we make no allowance for possible loss of queens during the wedding flight, such loss being so very easily reparable, and on the other hand have not counted the

culated on the production of a pound of honey for profit, preferring rather to face the probable suggestion that there may be a bad harvest or none at all, a state of matters the possibility of which we anticipated in our last, and hence our bee-farming has hitherto caused outlay only; we have spent 13*l.*, and have eighteen stands of bees, a safe position to assume, because it is a minimum result of ordinarily intelligent management. Here, then, supposing we desire to sell the increase of swarms and hives at the cost price we gave, viz., eight at 15*s.* each, we shall realize 6*l.*, giving a profit of 3*l.* on an outlay of 10*l.*, or thirty per cent per annum.

This, we are confident, is a sure basis for calculation; we have not attempted to mitigate the chances against success; have not taken advantage of the aids advanced culture will secure; have not omitted possible losses, but have calculated on twenty per cent against the purchased swarms surviving; twenty-five against the survivors swarming; thirty-three against their sending out the usual second swarms, and a hundred per cent against third swarms, and first swarming again; and we have left the production of honey and wax entirely out of the question, yet we have thirty per cent profit on our outlay.

These figures we fearlessly assert, and defy criticism; we know, and have always taught, that bee-keeping is an art, and the non-success of those who undertake it without a knowledge of its principles is no argument against us. Intelligent management will ensure at least the modicum of success we have indicated, even under adverse conditions of weather, and in a good season it will be enhanced many-fold. We have to-day received a report from a gentleman of the medical profession, to whom we supplied near forty swarms last year: he has reaped a profit of fifteen per cent by extracted honey, and to use his own words, 'every one of the stocks is in beautiful condition:' his swarms cost him 20*s.* each, and his hives, our cheap Woodbury standards, 8*s.* 6*d.* each. He purchased other goods (supers, &c.) on the chance of a favourable season, and his outlay altogether was near 80*l.* He sold his honey for 12*l.* to friends at 1*s.* per lb., to chemists at 10*d.*, and the remainder to Messrs. Neighbour and Sons at 7*d.*, prices which cannot be considered fanciful, or unapproachable in the future, and has a reasonable prospect of a much larger profit from his swarms, before the end of his first year of bee-keeping.

advantage that would naturally arise from artificial swarming and the insertion of ripe queen-cells, our object being truthfully to show that bee-keeping may be profitably carried on by the farmer with a minimum of labour and very ordinary skill. We have also omitted the chance probability that there will be more natural swarms than we have enumerated.—Ed.

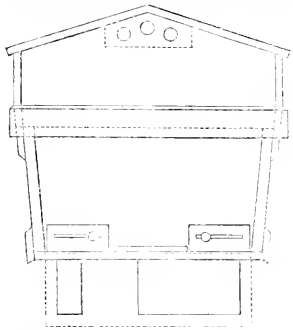
The hive we proposed to the intending bee farmer, mentioned in the foot-note on page 194, and who, by-the-by, is in no way connected with, and is entirely unknown to, the gentleman amateur whose success is herein recorded, consisted of a body box, of Standard Combination type, 30 inches front to rear, a floor-board, and roof. It was to contain eight frames, and a dummy, though capable of holding twenty, and the space in rear of the frames could be filled with other frames, or sections, or could be utilised as an easy and safe feeding-place. The floor-board and roof we proposed to make exactly alike, planed and painted on the upper surfaces, so that they could be used indiscriminately for either purpose, and in the event of a super space being required above the hive proper, we suggested that a spare body box should be placed between hive and roof-board. In a hive-box of this kind, there would be eight feet of three-quarter-inch pine; in the roof and floor-boards there would be near ten feet more, and plinths, ledges for floor-boards, and extras, say three more feet, making a total of twenty feet, which would permit of a few inches being cut to waste here and there, to avoid including a knot or faulty edge in the body of the work; but to be sure of sufficient material for division boards, porch pieces, sloping boards for front of hives, and casualties, we will say that such a hive will swallow up twenty-four feet, or two twelve-feet boards.*

Our farmers'-hive was not, however, approved, the size, when one box was placed upon the other (as proposed for supering) was displeasing, and the flat top too ugly. In proposing such a hive, we ignored everything but practical utility in our desire for cheapness, and simply followed the lead shown in the approved American farm-hives, many of which

* These particulars have been inquired for by several correspondents, certain of them implying doubt whether 'anything of a hive' could be provided at so low a cost as five shillings, the estimated value of the suggested farmers' hive, p. 195. Now to show that our figures were not intended to mislead, we crave permission to quote from a letter written to the prospective bee-farmer who resides on the Portsmouth line. We had been in correspondence and personal communication with him, and to facilitate the work he had in hand, we wrote thus:—'Now as to prices of materials, we can send you from London boards twelve feet long and eleven inches wide, similar to that the (sample) hives are made from, and quite good enough for the purpose, at eighteen-pence per board, all pine.' The carriage would add a trifle to the cost, but in a quantity would not add much per hive, so that practically the material for such a hive, of more than thrice the capacity of the ordinary Woodbury, or Cheshire hive, be it remembered, would cost the sum of three shillings, and for an additional body-box, should it be required, a further sum of six shilling. Our tender was not, however, accepted, Portsmouth being nearer, and materials evidently as easily obtainable there as in London. Inch pine would cost ½*d.* per foot more.—Ed.

have roofs perfectly flat, evidently to save material, and prevent the effect of rough winds. In making it so large, thirty inches long inside, full space was provided for back storing, and the necessity for the upper box or super compartment rendered doubtful, at the same time the hive could be used as a twin, or if required, as a triple hive for winter purposes.

Our bee-farming friend, while adopting most of our suggestions, preferred the pattern illus-



trated by the engraving. His own description runs thus:—

'The body box is of inch pine, floor-board of inch matched (*i. e.* grooved and tongued) flooring, planed, and the roof is of half-inch deal. The dotted lines in the upper angle of the roof show the position of a veil of wood, set an inch in front of the ventilation-holes, to keep out wet. The stand is formed of four bricks set on edge, parallel to each side, in the positions indicated; the dotted lines at bottom show the position of a flight board, sloping, at a low angle, from the entrance to the ground. The hive is "literally" Abbott's Combination without legs. The entrance slides run on screws.

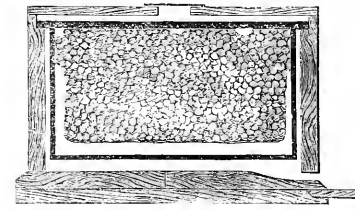
'If I made the frames, the cost of the material of the hive complete, without labour, would be under six shillings, exclusive of supers, which I consider would come under the heading of working expenses. I do not charge labour, for my son and myself will do all the carpentering and labouring necessary.'

(To be continued.)

HIVE CONSTRUCTION.

(*Continued from page* 179.)

The moveable comb-hive as we found it had evidently been constructed with a view to the convenience of both bees and bee-keepers, but we fear without a correct appreciation of the wilfulness of the former, who persist in adhering to the principles dictated to them by the wisdom we call instinct, a faculty that never errs. This truism is so generally admitted that it may be taken for granted, and therefore in hive construction we cannot be wrong in accepting the bees' own evidences of what is best adapted for their comfort and convenience. The bar-frame hive of twenty years ago was formed on the model illustrated in the wood-cut No. 1, the frames hung upon rabbets formed in its back and front walls, and there were spaces above and on both sides of the frames of three-eighths of an inch, and below of over half an inch, the walls and crown-board were of inch



No. 1.

deal, the floor of one and a half inches, with entrance cut out of (or sunk into) it; and there was a central feed-hole in the crown-board, the whole being surmounted by a portable roof, or kept within a shed or bee-house. For the convenience of the bee-keeper it was intended that the bees should build their combs within the frames, so that they might be easily removeable if wanted, and the spaces around were to be free for the convenience of the bees, that they might travel over and around their nest without impediment. This was pretty in theory, and highly desirable, but the bees most pertinaciously protested against the arrangement. Excepting those outside their brood-nest, the frames were never FILLED with comb, but the bees formed them as in the cut No. 1, and the spaces around they built in and blocked with comb to a degree that rendered them almost impassable, and most certainly prevented the easy mobility, the arrangement of the frames purposed. For many years the ingenuity of man was exercised to find means to overcome the perversity of the bees in these matters. The hive was not suspected of being wrong, the frames were correctly placed to enable the bees to build their combs at the same distance from each other as they did in their natural abodes, and the thoughtful (?) contriver had made every provision for the bees' convenience; why then would they be so perverse? And thus for years the bees were under reproach, and the bar-frame hivist always in difficulty because the instinct of the former had not been consulted by the latter when the hive they were to inhabit was being constructed.

On the score of healthiness, the bar-frame hive, as herein described, would not bear comparison with the close skep or box-hive, through the loss of heat which the airiness of the former permitted, the nest as represented by the comb-frame in fig. 1 being suspended in a box which touched it nowhere, and around which every breath of wind caused disturbance. In

the summer season there was a seeming advantage in this automatic ventilation, but in the winter, when heat is life to the bees, the disturbance of the hive's atmosphere, and the coldness of the weather, condensed the heat too rapidly, and the gases of the hive, naturally aqueous, formed drops of water on the outer combs, and on the inner surfaces of the hive, which observant (?) bee-masters endeavoured to deal with rather than prevent,* though, as is well known, dampness of hive walls is inimical to the well-being of bees, since it tends to make the hive colder through the more rapid absorption of heat by its wet surfaces.

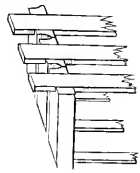
For many years no headway was made by advanced bee-keepers in their endeavour to promote the use of the moveable comb system in humane bee-keeping, because it was found as a rule that bees, kept in the old-fashioned skep, swarmed earlier than those in bar-frame hives, a fact that to the peasant mind, which accepts early swarming as conclusive evidence of successful management, overweighed all the arguments that even the verbose could advance in favour of improved hives. And to this day, where measures are not taken to prevent the loss of heat around the brood nest, the straw skep and simple box hive beat the former hollow in the direction named. It is very remarkable that though the bar-frame hive has been in existence for many years prior to the advent of the *British Bee Journal*, very little had been done towards its radical improvement as a dwelling-place for bees. That very many experiments had been made in regard to its size and shape we readily concede; but considering how hives still vary in those particulars, they were evidently without beneficial result, and with respect to the material of which hives should be constructed, almost everything has been tried that imagination or genius could suggest, and the result practically endorses the conclusion arrived at in 'antient' times, viz. that they should be made of whatever is most readily comeatable and easily manufactured. None of the experiments alluded to effected any improvement in the bar-frame hive; and but that they show dissatisfaction with hives as they were, need scarcely have been mentioned, but since the establishment of our *Journal*, and the Bee-keepers' Association and shows which it brought into existence; and has steadily fostered, the hive and its belongings have been objects of special interest, and the thought and care bestowed upon them have led to extraordinary improvement, both in their construction and management in Great Britain.

When Huber, the 'Prince of Apiarists,' constructed his 'leaf-hive,' so called because the frames or sections of which it was formed were hinged together and opened like a book standing on its end, he was, perhaps, without having given the matter consideration, as near (our idea of) perfection (for bee comfort) in the shape of his frames as it was possible to be without having achieved it. And why? Because (practically) he had taken a box containing a bees' nest, and had separated the combs by cutting through the box between them, so that when put together again the whole nest was perfect as made by the bees, and the box containing it very nearly as sound as at first.

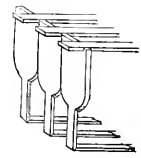
Anyone having a set of honey sections, such as are used in lieu of the old-fashioned supers, will have a good representation of a Huber hive, the frames of which, like the honey sections, touch each other all round, leaving almost no means for the escape of heat, except at bottom, and very little indeed of the inner surface of the hive exposed to absorb it. Now, while urging that the Huber frame is the most comfortable for the bees when snugly ensconced within their nest, it by no means follows that it is even near perfection in other respects. Mobility of frames to be duly serviceable must be consistent with handiness, with a minimum of danger to the bees, but the Huber frame gave neither of these desiderata. The frame surfaces (the edges) that came together were an inch wide, like those of the Giotto Italian Cottage Hive, which in manipulation gives much trouble, and the surfaces in being closed form bee-crushers that destroy many bees, and cause anger in the colony by the odour of the sting-poison set free by the crushing. The Huber frames also stood *upon* the floor-board (they formed the walls and crown of the hive), and could not be moved horizontally without danger to the bees; and this was also objectionable, though in the hands of a very patient 'master' the hive could be safely manipulated. Seeing the necessity for making the frames of a hive approach the conditions so evidently necessary for bee comfort, as shown by the bees themselves, we constructed and exhibited a hive at the Alexandra Palace Show in 1876, which contained provision for all their requirements, but the judges did not think it worthy of notice. It contained room for a large number of frames, the ends and bottoms of which touched each other, and formed the front and back walls and the floor of the bee-nest proper, and division boards which could

* The damp condition of hives in winter was believed to be *natural*, but its ill effects were so apparent that various measures were adopted to let it run freely from them. Holes were made in the floor-boards, and hives were raised up, leaving space beneath their lower edges; but the most palpable admission of the existence of the evil was shown in the construction of a channelled floor-board, arranged to allow the condensed vapour to run out of the hive entrance, an invention the 'cleverality' of which was highly extolled.—Ed.

be made to enclose any number of them formed the side walls. Excluders were arranged to cut off any part of the hive, for honey storing only, and all the arrangements were enclosed in a proper case, standing on four legs. The junction of the frame ends, and bottoms were arranged so that only a blunt V-edge of one frame end came against the side of another, and gave very little crushing surface, and left no more to propolise, than would be formed by the generally adopted (if not approved) zinc edge. The form of the frames as indicated in the woodcut, No. 2, which shows half of



No. 2.



No. 3.

them, and the way their ends touch each other. But, as before stated, they were not 'noticed' by the Judges at the Alexandra Palace Show, though subsequent events prove that they were a step in the right direction. We were convinced of this fact before introducing them, and before and since have been 'pegging away,' if we may adopt Abraham Lincoln's simile for hard fighting, against the evils arising from open frame ends, until we fear our readers must be weary of the subject. Nevertheless, it is a most important one, and though not appreciated in England, where every possible aid ought to be enlisted to prevent the evils arising from the fitfulness of our climate, it has not escaped the attention of our 'cute neighbours across the Atlantic, for in their 'Simplicity' hive they have carried out the essence of the principle involved in our effort of 1876, and affirm it to be correct. The Nellis Van Deusen Simplicity frame is the nearest approach to *our* standard of excellence that has ever been permitted public use, and when the widening of the frame ends is carried out in the same way as the widening of the ends of Abbott Standard frames, *i.e.*, on one side only, and opposite, at the ends, we think nothing will be left to be desired for the comfort of the bees, or the convenience of the bee-keepers. We give, No. 3, an illustrative cut of one half of three frames, sufficient to show the principle of construction, and that the alteration we have suggested can be carried out without detriment to appearance or usefulness. There will doubtless be the usual objections to the improved frame on the question of propolising; but as the method we have in view will ensure close fitting and leave no crevice, we are not haunted by any fears on the subject. We are very highly pleased with the Simplicity frame, not only because it is right, but because it supports our theory, and in use has proved it to be right also.

(To be continued.)

THE BEE-TENT IN IRELAND.

We are glad to be able to announce that the travelling Tent of the British Bee-keepers' Association is engaged for the 2nd September next, at a Flower Show near Belfast, there to unfold to the minds of our Irish brethren the mysteries of the bee-hive, and to awaken a more lively interest in, and instil a better knowledge of, the hives' occupants. Though termed 'British' the Association contemplated from the first the improvement of bee-culture throughout the United Kingdom; and nothing but the want of funds has hitherto prevented the complete fulfilment of the programme of its philanthropic work.

We by no means wish to imply that funds will not now be gratefully welcomed to help forward the development of its plans; and we have every faith that the Association will be properly supported when the great good which its visit to Ireland will effect is known and rightly understood. The proposed visit is one of the results of the Irish deputation to the Royal Agricultural Show at Kilburn, under Canon Bagot, with whom the Honorary Secretary of the Association is endeavouring to arrange a tour for the Tent during the autumn. At the late annual meeting of the Association, its Lady President, the Baroness Burdett-Coutts, whose noble heart and mind are ever in active sympathy with whatever is philanthropic and humane, spoke most eloquently in favour of extending to Ireland the good work which the Association is doing in England; and her generous sentiments will be echoed wherever they are heard.

It is to be hoped that the Tent and its staff of operators and exponents may have many engagements in Ireland, and that to enable the arrangements to be made without clashing, application will be made to the energetic Hon. Sec., the Rev. H. R. Peel, of Hemel Hempstead, Herts, as early as possible, and he, we are sure, will give every possible information and assistance.

THE BRITISH BEE-KEEPERS' ASSOCIATION.

Annual Meeting.

The Annual Meeting of the members of this Association was held at 446 Strand, London, on Wednesday evening, 18th February, the chair being occupied by the Baroness Burdett-Coutts, the President of the Association. There was a large attendance of members. Amongst those present were—Mrs. H. R. Peel, Miss Peel, Miss Amy Peel, Miss Augusta Peel, Miss Cressy, Mrs. Gordon, Mrs. W. O'B. Glennie, Miss Shirley, Mrs. H. Jonas, Miss Jonas, and other ladies; C. N. Abbott, Rev. E. Bartrum, F. Cheshire, W. H. Clarke, T. W. Cowan, W. Freeman, Herbert Jenner-Fust, Admiral Gordon, J. Garratt, R. R. Godfrey, T. Groombridge, T. D. Hardy, J. M. Hooker, J. Hunter, F. R. Jackson, J. P. Jackson, S. Jennings, H. Jonas, J. E. Littleboy, F. Lyon, G. Minson, H. G. Morris, A. Neighbour, Dr. Ogle, Rev. G. Raynor, C. Stevens, D. Stewart, G. Tottle, E. H. Wheatley, J. Willard, &c. &c.

Before proceeding with the business upon the Agenda, the Lady President said,—I may be permitted to congratulate the Association generally on the progress we have made since we met here last. As the bees are a working body, perhaps I had better go on with the immediate business before the meeting without delaying you further. You will, however, allow me to call your attention to the election of President and Vice-Presidents, which, as I understand, has been allowed to stand over. I would suggest whether it might not be a desirable thing to nominate as the Vice-Presidents of the Society those gentlemen who are presidents of the county associations. I think these gentlemen would take it as kindly to them, and probably it would give them greater interest in the welfare of the Society altogether, if they felt they were thus closely identified with the parent Society. I do not quite know how many county associations there are, but I should think they would be a very good number to begin with. [The Hon. Secretary: There are eight county associations at present.] I would venture to observe further, that we ought to be very careful that the county associations should be of a character as shall do credit to us; and not get us into discredit. It might be necessary to make inquiries in some cases as to the state of their finances, or their balance-sheet should be produced, or some other precaution taken, to ascertain that they are *bonâ fide* and well-managed associations. The next subject I desire to bring forward is that in connexion with Ireland. I think it would be extremely desirable, if it were possible, to extend our operations into Ireland. I understand that Canon Bagot is at present in Ireland, and that he is endeavouring to arrange for a series of shows; therefore this would be a very excellent opportunity to make known the objects of this Association, and the introduction of a new industry into Ireland just now would be particularly desirable and extremely well taken. I have myself been in communication with an Irish member of Parliament, Colonel King Harman, who has been trying to do this, as he tries to do everything else that can be of benefit to his tenants, and he will be extremely glad to put himself in communication with Canon Bagot, or the Secretary of this Association, or any one from whom he could obtain information on the subject. As to the sale of honey—that will be extremely useful; and no doubt one of the objects will be to try and get a good market both at Dublin and here. Perhaps the best means for extending the operations of the Association to Ireland is a subject which may very well be considered. In conclusion, her ladyship moved the adoption of the first resolution, viz., 'That the Report and Balance-sheet issued for the year 1879, be received and adopted, with a vote of thanks to Mr. Kirchner, the auditor.'

Mr. Jonas seconded, and the motion was carried unanimously.

Dr. Ogle proposed 'Votes of thanks to the retiring officers, and committee.' This last year, he said, had been a very bad one with regard to the operations of bees, and they might hope that the ensuing season would witness the achievement of much better results. After alluding to the great energy of the committee he referred to America, stating that in every part of that great country bee-clubs were established; and when it was remembered that the bee was only introduced into America about 200 years ago, it was very clear that energy and work would do a great deal in furthering this industry.

Mr. F. R. Jackson of Slindon having seconded the motion, it was carried unanimously.

Mr. Cowan said he had been asked to move the third resolution, which he did with much pleasure, viz., 'A vote of thanks to the Council of the Royal Society for the Prevention of Cruelty to Animals, for the gratuitous use of their Board-room for committee meetings.' Their thanks were due to that Society not only for the use of the Board-room, but doubly so for the use of it gratuitously. When in the room, this Association was a 'chip of the old block;' for they advocated kindness to the bee, which was kindness to insects if not to animals.

The Rev. E. Bartrum, in seconding, said the Association was very much indebted to the Royal Society for the use of their Board-room.

The motion was carried unanimously, and

The Lady President said insect life was a subject that attracted the attention of the Society, who desired to promote kind treatment and some consideration for insects, which were thoroughly recognised as animals.

The Hon. Secretary said he claimed the privilege of his office in moving, 'A vote of thanks to the Royal Horticultural Society for their hearty and ready co-operation in the projects of the British Bee-keepers' Association.' As Secretary he had, as Mr. Cooke, the tourist, termed it, 'personally conducted' the negotiations with the different societies with whom the Association is brought into contact: and he might say that from the very first the Royal Horticultural Society had extended the right hand of fellowship to this Association. Every facility had been given for the holding of the Association's Annual Exhibition, and every possible assistance had been rendered by the officials—and rendered most cheerfully and willingly. If his gratitude were expressed in brief language, it must not be thought the less sincere on that account. Gratitude had been defined to be a sense of favours to come, and on looking towards the end of the Agenda paper it would be seen that there was a proposal to form a Reference and Loan Library in connexion with the Library of the Horticultural Society. The resolution he was proposing was drawn up long before Mr. J. P. Jackson made the suggestion as to the library; but as coming events cast their shadows before, so this proposal gave an additional reason (as it were by anticipation) why the best thanks of the Association should be given to the Horticultural Society for their uniform kindness and goodness.

Mr. F. Cheshire alluded to the trying circumstances, with regard to the weather, under which the Association's Show was held at the Royal Gardens, and remarked upon the kind attention which the officers of the Horticultural Society rendered on the occasion. He seconded the motion.

The resolution was passed unanimously.

The Rev. G. Raynor moved the next resolution, viz.: 'the Election of President, Vice-Presidents, Treasurer, and Secretary for the year 1880, in accordance with Rule 8.' With regard to the election of President, very few words were required from him, for every member of the Association, he was sure, felt deeply the kindness and goodwill of that honourable lady, who had consented hitherto to preside over the Association. Her name was not limited to this country, but wherever the English language was spoken, her philanthropy, her kindheartedness, were known to be far beyond all praise. The suggestion that the gentlemen who were presidents of the county associations should be elected Vice-Presidents of the Central Association, he thought was a most excellent one, and he had great pleasure in proposing it. As to the Secretary, no words of his could possibly express the great advantage which that official had brought to the Society. When Mr. Peel came forward, the low state of the Society was known to all present: now it was enlarging its borders, and already eight county associations had been formed; and in the course of time, he had no doubt that every county in this country would have its own association—and this was to be devoutly wished. The time, the energy, and the ability, which their most worthy Secretary had devoted to this Society in promoting its interests were beyond all praise; indeed, were it not for Mr. Peel, the Society would have been in a very far different state from that in which it now was.

The Treasurer (Mr. Glennie) also had performed his duties diligently and well. He concluded by moving that Lady Burdett-Coutts be re-elected President; the several presidents of the county associations, Vice-Presidents; Mr. H. R. Peel, Hon. Secretary: and Mr. Glennie, Treasurer.

Mr. Littleboy said he did feel it a great honour to be allowed to second the re-election of the Lady-President, whose name was a household word where goodness and philanthropy were concerned, and it would be impertinent on his part to add one word to what had already been said. As to the Vice-Presidents, he should have been glad if their names could have been mentioned, as the motion would then have seemed more in form. He did not personally know the Treasurer, but he had been informed that the gentleman's assiduity to business was fully equal to that of the other members of the Society. Last, but not least, he came to his neighbour and the Society's most excellent Secretary. He had not the opportunity of seeing Mr. Peel's work in this Central Association, but he was acquainted with his good work in the little Herts County Association, into which Mr. Peel had put absolute vitality. In spite of the untoward season that had just gone, the Herts Association was a really active and living organization, a fact which was in a great measure owing to the energy of their Secretary.

Mr. Hunter said he should prefer that the election of Vice-Presidents be left to the committee, as then an opportunity would be afforded of making inquiries relative to the several county associations, as was suggested by the Lady President. Did he understand that all presidents of county associations were to become Vice-Presidents of the central body? If so there would be a danger of being swamped with vice-presidents in time to come.

The Lady President: When I mentioned the matter I intended that the names should be known.

The Hon. Secretary said that the Archbishop of Canterbury was the President of the Kent Association, the Bishop Suffragan of Nottingham of the Lincolnshire Association, and the Earl of Verulam of the Hertfordshire Association. He stated other names, but was unable to give a complete list.

Mr. Hunter suggested the appointment of a committee with power to elect Vice-presidents.

The Hon. Secretary said the proper course would be to inquire into the names of the several presidents and report to the committee; and if these gentlemen consented to become Vice-presidents of the Central Society, they could be formally elected at the midsummer general meeting.

Mr. F. Lyon considered they might now elect those gentlemen whose names had been mentioned, leaving it to the committee to decide upon the expediency of electing those whose names were not known.

Mr. Jennings said, in the case of the Royal Horticultural Society, it rested entirely with the President to nominate his vice-presidents. Might this Association not follow the precedent?

The Rev. G. Raynor: The rules state that the President and Vice-presidents should be elected at the annual meeting.

The Rev. E. Bartrum suggested that the election of the Vice-presidents be postponed in accordance with the suggestion of the Honorary Secretary.

This course was adopted, and the resolution with this understanding was put to the meeting and carried unanimously.

The Hon. Secretary then announced the results of the voting in regard to the election of the committee as follows:—Mr. T. W. Cowan, 169; Rev. G. Raynor, 167; Rev. E. Bartrum, 164; Mr. J. M. Hooker, 162; Mr. R. R. Godfrey, 159; Mr. F. R. Cheshire, 155; Mr. C. N. Abbott, 148; Mr. J. Hunter, 133; Mr. J. P. Jackson, 103; Dr. Lionel S. Beale, 93; Rev. F. T. Scott, 64; Mr. F. R. Jackson, 48; Mr. D. Stewart, 38; Mr. W. W. Kettlewell, 34; Mr. F. Lyon, 33; Rev. W. H. Benn, 19; Mr. H. G. Morris, 6. The first nine gentlemen constitute the committee.

He concluded by moving a vote of thanks to Mr. Willard, who, at the request of the President, had acted as scrutineer of the voting papers.

Mr. Cowan seconded the motion, and it was carried unanimously.

Mr. Willard returned thanks, remarking that his labours were considerably lightened by the care and accuracy with which Mr. Huckle had prepared the register of the voting papers.

Mr. Hunter said at the last meeting Mr. Peel had stated that the work of the Society was increasing to such an enormous extent that he would be unable to continue the duties without some assistance. They all knew that ever since Mr. Peel had held the office of Secretary he had been assisted by Mr. Huckle, who had performed his duties with the utmost efficiency. It had been a matter of surprise that Mr. Peel had been able to do as much as he had done, and the suggested appointment of an Assistant Secretary did not come upon them suddenly. He moved 'That Mr. Huckle be appointed Assistant Secretary to the Association at a salary of 25*l.* per annum, in addition to his travelling expenses.'

Mr. C. N. Abbott said it afforded him a great deal of pleasure to second the motion; and it was quite unnecessary for him to add anything to what had already been said by Mr. Hunter. To do more than bear testimony to the way in which the Secretary had performed his duties, would be like painting the lily, and as Assistant-Secretary they could not possibly have a more efficient officer than Mr. Huckle. He was always at hand when wanted, and he had been present at almost every show held under the auspices of the Association throughout the country, willing to do anything to please anybody and everybody. The salary proposed would be only a fraction of what he deserved, for the amount of labour performed was simply enormous.

The motion was carried unanimously, and

Mr. Huckle expressed his thanks, adding that he would do his best to afford satisfaction.

The Hon. Secretary then announced the results of his correspondence with the Royal Horticultural Society, the Royal Agricultural Society, the Bath and West of England Agricultural Society, and the Islington Dairy Show authorities, with regard to exhibitions of bees, hives, and honey during the present year. The Royal Horticultural Society he need not mention again, as the dates of the show had already been settled with them. He wrote to the Secretary of the Royal Agricultural Society, inquiring if it would be possible for this Association to send a bee tent to Carlisle, where they were about to hold their annual show, upon the stipulation that a separate entrance-fee should be charged in respect to the tent. In reply, he was informed that the committee would meet on 3rd of March, when probably the Society would be willing, after their experience at Kilburn, to facilitate, in every way, an exhibition of bees in connexion with their show. The Council of the Islington Dairy Show had not yet given a definite answer, though they seemed disposed to view the application favourably; but the Bath and West of England Agricultural Society had replied that it was entirely contrary to their rules to allow any extra payment within the exhibition grounds, and that therefore they could not sanction the application. Subsequently he wrote to ask if the Association might be allowed to offer prizes, but even that would not be conceded.

The President observed that the present was a very favourable opportunity for introducing the work of the Association in Ireland.

The Hon. Secretary said he had received a letter from

a gentleman at Belfast, asking if the Bee Tent could be sent to a show that was about to be held there. He replied that the Association would be glad to entertain the proposal, but that it was scarcely worth the while to send the tent such a long distance for a single show, but if a series of shows could be arranged, extending over a week or a fortnight, the Bee Tent might be sent, and would doubtless prove for the benefit of the people. He also wrote to Canon Bagot—who brought over a large detachment of Irish farmers to Kilburn—on the same subject, and the rev. gentleman had in reply promised to bring the matter before the Royal Agricultural Society of Ireland, and also before the Council of the Royal Horticultural Society of Ireland. In the meantime, Canon Bagot asked, whether, if a week of shows could be arranged in September, and the Association were allowed to charge an extra admission fee of 6*d*. to each visitor to the Bee Tent, the Association would take the risk of sending over their Bee Tent? He (Mr. Peel) replied to this letter in the affirmative, and he was awaiting a further communication from Canon Bagot.

Mr. Cheshire said he had recently received a copy of an Irish newspaper from a friend residing in Dublin, who was at the present time endeavouring to form a Bee-keepers' Association. The object was to teach the peasantry to keep bees with profit to themselves.

Mr. Abbott said he was in communication with several bee-keepers in Ireland, but he was sorry to say that the state of bee-keeping in that country was very bad indeed. From ever so many districts he had heard that the cottagers' bees were dead, simply because there they had not been taught to feed them.

The President: I was speaking to Colonel King Harman on this subject, and he tells me their hives are very bad; therefore, information and instruction would be doubly valuable.

Mr. Abbott said some time ago it was proposed to establish a Society similar to this; but it fell through in consequence, he believed, of their being no prospect of any incoming of honey, by which they could make a reasonable show that bee-keeping was profitable.

The subject then dropped.

Mr. F. Lyon next moved: 'That it is desirable that sums received as qualifications for Life Membership, should be treated as capital and invested, and not applied to the current expenses of the year in which they are received.' This was a resolution which would commend itself to every business man in the room. These sums being once received were not likely to be received again, and they should be treated as capital. The wonder to him was that the idea had not occurred to somebody before, for had the Association gone on for a few years longer, and the number of life members increased, and the sums received used for meeting current expenses, they might possibly have been crippled. If these sums were invested, they would form a nucleus of a Reserve Fund, the interest of which would render the Association to a certain extent independent of subscriptions.

Mr. Abbott said he had undertaken to second this motion, more particularly for the purpose of eliciting discussion. He did not think it would be an unwise thing to invest the capital in purchasing lithographs for instance, so as to avoid entrenching upon the general fund. It was evident that if anyone gave 20*l*. as a life donation that that should not be treated as a part of the current year's revenue. It should be invested, even though it were invested in the Association's own assets.

Mr. F. R. Jackson said the fund was at present so small that he thought it early to bring forward such a proposition.

Mr. Lyon said although the sum was small it was the principle that he wished to establish.

Mr. Hunter said if the money were spent in good work surely it would result in greater benefit than if it were invested. All these gentlemen get for their 5*l*. subscription was four votes, and if the Association should unfortunately come to grief they would not ask for their money back again.

Mr. Cheshire thought the Association was scarcely in a position to invest yet, and the Rev. E. Bartrum expressed a similar opinion.

The President considered it desirable to establish the principle, and the Hon. Sec. also expressed himself in favour of it.

Mr. Herbert Jenner-Fust said he was a member of the Entomological Society of London, which treated the donations of life members as capital and invested them, and the interest was found extremely useful in providing books and other things for the benefit of the members.

Mr. Glennie, the Treasurer, suggested that the Association might affirm the principle of investment, but he would not advise the investing of this money until the balance in his hands had reached the sum of 100*l*. At present it only amounted to 43*l*. 16*s*. 4*d*.

Mr. Lyon stated that if the principle of his motion was affirmed he should be quite willing to leave the details to be carried out by the Committee. On a division, the motion was carried by sixteen votes to six.

The Rev. E. Bartrum moved, 'That in the opinion of this Association it is advisable that a Professorship of Apiculture should be established in connexion with the Science and Art Department at South Kensington, and that the Committee be requested to take such steps as shall seem expedient, with a view to the establishment of a Professorship.' In introducing this motion he need not apologise for bringing forward a subject of such importance, for he was encouraged to proceed by the favourable way in which it had been received by the Committee. Everybody would admit that apiculture in England was not in the position it should be, and those who knew what the Germans had done must concede that we as a people were very much behindhand. Some twenty or thirty years ago science and art were in a very similar state; but through the agency of the school at South Kensington, the various art schools throughout the country had wrought a vast improvement. Within the last few years a School of Cookery had been established, and a School Board with which he was connected made it a point to teach the girls to cook. If it were true that apiculture were so far behindhand, it would be well for this Association to do something with the view of securing the appointing of a Professor at South Kensington. It might be asked, What would the work of a professor be? He did not think a professor would find very much work at South Kensington at first, but he could visit the training colleges. Now he would undertake to say that ninety-nine out of every hundred teachers in elementary schools know nothing whatever of bees, except that they could sting, and that by some mysterious process they make honey. A professor would find abundance of work in the training colleges and also in all the agricultural colleges. Mr. Raynor had said that in his immediate neighbourhood, in Essex, the clover had been a particularly good crop, because the bees had fertilised the flowers, and that in other parts of Essex where no bees were kept the clover was a very poor crop. He had also been assured that crops in general were improved by the presence of bees. The professor might also go to such schools as the Devon County School and the Norfolk School; he might put in an appearance at Eton;—in fact, he should be, to a certain extent, a peripatetic lecturer. He alluded to the work of Mr. Buckmaster, and asked why some one should not be appointed in a similar capacity to foster the interest in bees. Moreover there might be certificates for apiculture, and the work of the professor would be to examine for the department. In this way, in the course of five or ten years an important stimulus would be given to apiculture. He did not propose that this Association

should undertake the cost. He had been informed that professors generally had 200*l.* a-year with allowances; but he did not suppose that the entire cost would exceed 600*l.* a-year—not a very large sum. It might be further asked, What do you propose should be done? What he would suggest, if the Association cordially approved of the motion, was that the committee should put itself into communication with the Education Department, asking for an interview with Lord George Hamilton, and the deputation should be supported by all the powers and influence the Association might possess, and it was possible that Government might take a favourable view of the matter. The strong feeling that there was something to be done to enable us to compete with foreigners would be a strong argument in favour of the proposition.

The motion was seconded by the Rev. G. Raynor, and supported by Mr. Stevens, and it was carried unanimously.

The President observed that some new school-books were about being brought out by Messrs. Nelson, of Edinburgh, and suggested that some steps should be taken to introduce a lesson or two in apiculture.

The Secretary said he would see if anything could be done.

Mr. J. P. Jackson:—The motion which I bring forward, 'That it is desirable to form a reference or loan library of works relating to bee-culture, if possible in connexion with the library of the Royal Horticultural Society and that of the Lindley Trustees,' is one that I feel sure will meet with your support, for so many advantages would accrue both to the individual members of our Society, and to the Association itself, from the possession of a good collection of bee-books. There exists, I believe, no thoroughly comprehensive and exhaustive work on bees and bee-keeping: were such a book issued, it would probably be too cumbersome to meet with a ready sale, and in face of the constant discoveries and improvements in bee science and culture would ere long be out of date. The student, therefore, who wishes thoroughly to master the theory of any subject connected with bees must refer to the books handed down to us in such great number, and must endeavour to extract from the mass of recorded experience and investigation the information that he is in search of. And not only to the inquiring student would such a library prove of value. Those who are no longer novices in bee-keeping may spend many a pleasant hour in looking through the works of the earlier bee writers, finding perhaps a pet theory confirmed, or maybe that what they had fondly imagined was a discovery of their own to be in reality only new to them. The possession of a collection of apiarian books would be of great service to our Association also, for it would draw upon it still more the attention of bee-keepers, and would bring our Society into closer contact with the literary and scientific world. We should further be able to hold out one more inducement wherewith to enlist members for our Association, as admittance to the Library would be free to members on presentation of their card of membership. The accumulation of an apiarian library has now been placed within our power by the handsome proposal of of the Royal Horticultural Society, which offers to us at South Kensington—that centre of the art and intellectual training of the country—all facilities and accommodation free of expense for the establishment of such a collection in connexion with its own library of horticultural works and that of the Lindley Trustees. Such an alliance of apiculture with horticulture would be most honourable to each; and you will, I am sure, listen with interest to the details of the proposal as presented by Mr. Jennings, the secretary to the Society. Should the present scheme be adopted we need have little difficulty as regards books if our members will give the movement their effective support by acting with self-denial, and presenting, or even lending, to the Association their books on bees. There are few bee-keepers who have not one or more such to spare. Second-hand bookstalls would also prove a rich field of search, and would provide us with works otherwise unobtainable. If the matter is warmly taken up I will gladly present my bee books, to the number of about forty, to the Association. There are many reasons that I think should induce us to approve of the establishment of a national bee library. So many books have, at various times in the world's history, been written on the subject of apiculture that its literature is very extensive, and very few have either the inclination or the power to possess a tolerably complete bee library. There is, therefore, a splendid opportunity for our Association to render itself famous by laying the foundation of an apiarian library, in the inauguration of which, while the possession of the works of English bee-masters is the primary object, the records of the experience and life-long labours of those foreign workers who have so greatly assisted to raise bee-keeping to the proud position it now occupies, are not left out of sight. One of the objects of our Association when it was formed in 1874 was, according to the 'Rules and Regulations' then issued, 'the circulation of suitable books,' so that we shall only be acting in accordance with our original intentions in giving this scheme our support. Then to look at the matter from a national point of view, we Englishmen make it our boast that we are ever in the front rank in all movements tending to intellectual or moral progress: and it is therefore but fitting that we should be the first nation to start a library of works so interesting and valuable alike to the naturalist, the philanthropist, and the man of science. I therefore beg to move 'That it is desirable to form a reference or loan library of works relating to bee-culture, if possible in connexion with the library of the Royal Horticultural Society and that of the Lindley Trustees.'

The motion having been duly seconded by Mr. Alfred Neighbour, Mr. Jennings explained that the library at South Kensington was a public one, and there was not much space: but at Chiswick there was accommodation which would be cheerfully placed at the disposal of the Association.

There was considerable discussion on this motion, Mr. Hunter opposing it strenuously; but on a division being taken, so large a show of hands was made in its favour that the principle enunciated in it was approved, the mode of carrying it out being left to the Committee.

A vote of thanks to the President, the Baroness Burdett Coutts, for presiding having been proposed by Mr. Cowan and seconded by the Hon. Sec., the proceedings terminated, the meeting having lasted two hours and a half.

ASSOCIATION FOR THE PROMOTION OF MINOR FOOD PRODUCTION AND COUNTRY PURSUITS.

Some ladies and gentlemen, anxious to open a field for the profitable employment of all classes of women, have formed themselves into an Association for the promotion of Minor Food Production and Country Pursuits. It is proposed to found a school where theoretical and practical training will be given in fruit, flower, and vegetable culture; poultry and pig-rearing, bee-keeping and dairy work. Great encouragement has been given to the promoters by the fact that many ladies have already expressed their wish to become pupils in a well-organized institution. Great care would be taken in thoroughly teaching the various subjects, so that pupils after their training in the school might carry on one or more of the branches of Minor Food Production at their own homes, on ground which

might otherwise be comparatively useless. Such large and increasing sums are annually paid to foreign countries for produce, most of which could be equally well raised at home, that it is felt that there is an almost unlimited field for the profitable employment of women. The institution will be arranged with a view to its being ultimately self-supporting. Meanwhile donations and subscriptions, and also promises of contributions extending over a term of five years, to be called up only if needed, will be gladly received by the Hon. Secs., Miss Thorne and Miss M. Thorne, Southover Grange, Lewes.

The Association desires to be a centre of information concerning Minor Food Production, of which bee-keeping will form an important part, and it would wish to make widely known the demonstrations of artificial swarming, &c., which Mr. Abbott has kindly promised to show when the season is more advanced.

[We have suggested that during a fortnight in May or June, the whole process of artificial swarming and queen-raising may be thoroughly learned, and we shall have great pleasure in exhibiting and explaining the whole proceeding, without charge, to members of the above-named association. We shall be prepared, at an hour to be named, on each day, to show the work of the bees to those who care to see them so often; the time shall be arranged to suit those to whom it is 'precious,' an hour being selected between arriving and departing trains. We are about six minutes' walk from Southall Station, on the Great Western Railway, from Paddington and Victoria.—Ed. *B. B. J.*]

SURREY BEE-KEEPERS' ASSOCIATION.

On Saturday evening the above Association, which is affiliated to the British Beekeepers' Association, held its first general meeting of members in the Judge's Room, County and Borough Halls. The chair was taken by Captain C. D. Campbell, treasurer to the Association. The Secretary (Mr. F. Lemare) read the report of the committee for the past year, from which it appeared that sixty-three subscribers had joined the Association since its formation last spring, and that two exhibitions for bees and bee apparatus had been held, one at Croydon in June, and one in Guildford in July, both of which were very successful, leaving profit in favour of the funds of the Association, which shows a balance of 25*l.* in hand. The past year appears to have been a very unfavourable one for bee-keepers, and very little British honey was brought into the market, owing to the extraordinary and wet summer; but the efforts of the Association have resulted in spreading much practical knowledge of the culture of bees, and in inducing cottagers to adopt a better and more profitable system in the management of bees and hives. It was resolved that the next county bee show should be held at Croydon, when the British Bee-keepers' Association will send their bee-manipulating tent to practically illustrate the new methods of hiving and transferring bees, and extracting the honey without destroying the combs. Silver and bronze medals and other prizes will be offered for competition in the various branches of bee-culture, and a good honey harvest is looked for. Three members were elected to fill vacancies on the committee, and, after transacting some further business, the Chairman and other members made some practical remarks upon the advantages resulting to those bee-keepers who had adopted the moveable bar-frame hives, and were thus able to obtain a small honey harvest by using the honey extractor, replacing the combs in the stock hives, and, by feeding judiciously, preserving their stocks entire through the winter, while a great many on the old system had lost a vast number of stocks from starvation. A vote of thanks was awarded to Mr. Lemare, hon. secretary, for his zeal and indomitable energy in having started the Association, and performed the duties in so satisfactory a manner, and the proceedings concluded with the usual vote of thanks to the chairman. The attendance was very small, owing to unfavourable state of the weather. This excellent Association appears to promise good results by encouraging bee-culture on a better system than has hitherto obtained in Surrey generally, and is under the patronage of the Earl and Countess of Onslow. The Association has drawn up a scheme for the formation of village bee clubs, the object being to induce cottage bee-keepers to take more care of, and to increase their stock of bees, also to keep them in the bar-frame instead of the common straw hives. The plan suggested for interesting and encouraging the members is to hold meetings once a-month, or oftener, if advisable, there to learn from each other's experience with the stocks, and thereby stimulate one another to greater exertions, so producing greater profits. The Association will give short lectures, or hold conversation meetings with the members of the clubs, and offer bar-frame hives for them to purchase on easy terms of payment. The scheme further explains the matter, and Mr. Lemare, the hon. secretary of the Association, expresses his willingness to render any assistance in his power towards inaugurating village clubs or otherwise aiding the advancement of bee-culture.

BERKS AND BUCKS BEE-KEEPERS' ASSOCIATION.

This association is working well, and promises great things on behalf of bee culture. It has the sympathy of the committee of the Prince Consort's Cottage Garden, Association, who have undertaken to give prizes for bees, hives, and honey at its show this year; and it is hoped that an exhibition of manipulation will be permitted within the grounds at Windsor. The show of the Prince Consort's Association was not held last year, but much interest was created in the neighbourhood by an exhibition which we conducted at Etonwick, though the weather was most unfavourable, the rain pouring down continuously. The show at Windsor is favoured generally by the presence of her most gracious Majesty and many of the Royal Family; and we venture to hope that the manipulating tent may be honoured in a similar way. Bee-keepers are essentially loyal; they learn the lesson taught by the bees, and such a mark of recognition from *their* Queen would send them wild with delight, and permanently guarantee the future of apiculture in the British Islands.

At a meeting held on January 30 last, in the New Albert Institute, the minutes of the previous meeting were read, and the accounts audited, showing a balance of several pounds in favour of the Association. It was also resolved that Local Committees in both Counties should be advocated as a means of increasing local interests, and they will be appointed *pro tem.* As a means of extending bee knowledge, it was resolved that the *British Bee Journal* be placed in the Reading-room of the Albert Institute, an example worthy of imitation generally. It is hoped that the clergy of both counties will unite with the Association, and, while giving support to it as members, further its work as teachers of bee culture, for which they are so perfectly adapted. W. R. Harms, Esq., of Clewer House School, was the Chairman of the Meeting. R. Richardson-Gardner, Esq., M.P., and Victor W. Bates Van de Weyer, Esq., are patrons of the Association. The Hon. Secretary (*pro tem.*), Mr. W. S. Darby, of No. 5 St Stephen's Villas, Clewer, Windsor, will be glad to receive the names of donors, subscribers, and members, and will give every possible information.

AN IRISH BEE-KEEPERS' ASSOCIATION.

I hope you will allow me to draw the attention of the public to bee-keeping as an industry by which many thousands of pounds which at present go to America annually for wax and honey, might be kept in the country.

There is no occupation which yields so large a return for the capital invested, and there is not one so well suited to cottagers and people of small means as bee-keeping—all the outlay absolutely necessary being about 1*l.* 5*s.* for hive and bees. It is an industry which hundreds of people can engage in without interfering with their regular business, and which might serve to give work to many now seeking labour, or additional income to many in straitened circumstances, and it is one that is not overworked or overcrowded, and for the products of which there is always a demand. Moreover, it can be carried on as well by the occupier of ten perches of land as by the owner of 10,000 acres.

In the few districts in Ireland where bee-keeping is carried on, it is in such a wasteful fashion that the wonder is that it pays at all. As a rule, the bee-keeper at the end of the season smothers his bees with sulphur, thus losing about 15*s.* at the outset. He obtains as the result about twenty pounds of honey, which, owing to its being flavoured by the fumes of the burning sulphur and mixed with pollen, immature bees in various stages of development, and other contaminatory matter, is only worth about 9*d.* per pound.

It is greatly to be deplored that scientific or 'advanced' bee-keeping is almost unknown in this country. Bees kept on this system generally give about one hundred pounds of the purest honey from each hive, and that without using sulphur or destroying the bees. At a bee show held in the Alexandra Palace in London, recently, a hive was exhibited which had 112 lbs. of honey store in it (over 7*l.* worth). The total cost of this hive and bees in all probability was under 3*l.* 10*s.* At a previous show a prize for quality was awarded for honey made in a hive in an attic in the Strand, London, the nearest bee pasturage being over half a mile distant.

The plan by which I propose to extend the knowledge of scientific bee-keeping is that those ladies and gentlemen who take an interest in the subject and are desirous of assisting their poorer neighbours, should form themselves into an Irish Bee-keepers' Association on the plan to the English one, and paying a minimum subscription of five shillings annually to it. They would in this way obtain the very best and latest information about bee-keeping, and, in addition, would be able to purchase bees, hives, &c., at very low rates.

In England there are two journals entirely devoted to bee-keeping, besides which many others devote one or more pages weekly to the subject. There are also several flourishing bee-keepers' associations, each of which has conversaziones, shows, &c., in its own district throughout the year. Thanking you for the space you have given me, I am yours faithfully,—R. S. *Dublin.*

P.S.—Since writing the above I have heard that the Government contemplate appointing a Professor of Apiculture under the School Board Act, thus showing that the importance of the subject is being recognised.

[The above appeared in the *Daily Express* (Dublin). The writer doubtless believes every word he has written to be true, but he has evidently been misled by the trashy statements of others. If it were nearly correct that 'bees generally give one hundred pounds of honey from each hive,' bee-keeping would be the finest business in the world; but it is not true of England, Scotland, or Wales, and is not likely to be so of Ireland. Neither is it true that 'Government contemplate appointing a professor.' There is colour for the idea in the fact that the British Bee-keepers' Association are about to apply for some such appointment to be made, but the statement last quoted is in advance of the truth, and like that in respect of the honey yield, is misleading. We very strongly deprecate the putting forth of sensational assertions about bee-keeping. When they are made to further its advancement as a desirable industry, they defeat the object they were intended to serve; and when made, as they often are, to further private ends, they are despicable.—Ed. *B. B. J.*]

BEES AT THE SWISS AGRICULTURAL EXHIBITION AT LUCERNE, 1881.

In the execution of a decision of the assembly of delegates of the Swiss Agricultural Society, May 19, 1878, as well as of the resolution of May 29, 1879, adopted by the Societies of Agriculture of German and Roman Switzerland, there will be in in 1881, at Lucerne, an exhibition, at which bees and bee implements will form an important feature, the date of which will be given later on, and which will extend over a period of ten days. The Exhibition will be undertaken by the Society of Agriculture of the Canton of Lucerne, its 'direction' being confided to a Central Committee, which will see that it is properly conducted. It will be opened with an appropriate *fête.* Further particulars will be given when the arrangements are more complete: but we give early intimation that intending tourists, who are interested in bees, may reserve the Cantons as better worth a visit next year than this.—Ed.

BEE AND HONEY SHOWS FIXED FOR 1880.

July 27, 28, and 29.—South Kensington. British Bee-keepers'.
Aug. 5.—West Kent.
Aug. 11, 12.—Surrey County.
Aug. 18, 19.—Shropshire County.
Sep. 9, 10.—Hertfordshire County.

LECTURE.

The first of a course of lectures was delivered on Friday, the 23rd of Jan., in the Public School, Whitehill, New Deer, Aberdeenshire, by Mr. R. M. Greig, Parkhill. The subject chosen by the lecturer being a very novel one, viz. 'How to Pay the Rent; or Practical Apiculture demonstrated by Diagrams, and all the implements used in Modern Bee-keeping.' A very large and enthusiastic audience turned out to hear the young lecturer's treatment of the subject.

The theoretical part of the lecture was very ably treated, being demonstrated by quite a host of diagrams and specimens of dried plants lent for the occasion by Mr. R. R. Godfrey, Grantham.

The practical side of the question was treated in the same able manner, being demonstrated by every conceivable article of bee furniture, kindly lent by Mr. W. W. Young, Perth.

The audience—whose rapt attention was kept for an hour and a half—not unfrequently exhibited their appreciation of the different experiments by hearty rounds of applause. Altogether the lecture was treated in a very enjoyable manner, and we are certain will result in enlisting many into the ranks.

Mr. Greig at the close invited his audience to inspect the different articles of bee furniture, &c., which were all very neatly arranged, and presented quite an imposing scene.

The invitation was largely taken advantage of by large numbers of farmers and working men; and the many questions asked clearly proved the fact that this new method of treating the industrious little insect was in general favour. Not a few went away determined to commence operations at once.

Correspondence.

**** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be fully and faithfully recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

AN INFLAMMATORY PIPKIN.—GOLD CURRENCY.

Permit me, Sir, for the last time, to reply to 'Raven, Jun.', that had he given me his address I would gladly have forwarded to him a small sample of bee-gold, having, as I informed you in a confidential note (15th Dec. 1879), forwarded some to the Bank of England, Royal School of Mines, Royal Institute, Chancellor of the Exchequer, *Investor's Guardian*, and last, not least, to an august and very high lady in the land. This gold has been assayed by an eminent firm of assayers, as well as by direction of Goldsmiths' Hall, and pronounced as 'fine gold,' thus showing 'How bees in common all their wealth bestow on us.' Better methods of extracting the gold and saving the wax, no doubt, will be discovered. In No. I process, when the pound of wax is consumed, there always will remain a semi-liquid charred substance; the pipkin must then be *put on the fire*, and heated for one hour, when cooled down, the yellow metal may be scraped off. ('O love of gold, thou meanest of amours.') I await the advent of summer to forward to the Editor of this *Journal* the leaves of flowers containing the tiny grains of the precious metal (not sulphuret of iron), as well as samples of gold extracted from their ashes. I, however, enclose you, herewith, the only sample of 'floral gold' left me, begging your kind acceptance of the same. *Name* of flower will follow shortly.—James Bruce, *late* 33*rd Regt.*, 7*th Feb.* 1880.

[The paper of 'gold dust' duly arrived, and we shall be glad to send a few grains to any authority competent to find a verdict on its purity; the more so if he will undertake to make the experiment anew, and report on the result under his hand.—Ed.]

HUMBLE BEES.

As I am a lover of the humble bee, and have hived a good many nests of them in my time, would you kindly allow me to give for others' information the little I know about them? I am acquainted with three distinct kinds.* The first, which is hereabouts called the 'Garrie,' is covered with fine down, black with yellow tinselled bands; the abdomen is covered in the same way, but is all white except a black ring behind the filament that joins it to the thorax. The second is very like the first except the abdomen, which is of a very bright red, and has a darker appearance generally. The third is of a greenish yellow, or moss colour. Their nest is always to be found on the surface of the ground amongst mulch, or moss (commonly called fog), whence their name 'Foggy-toddler.' They are all of the same nature as to being domesticated. After having a nest they will adhere to it, and thrive amazingly* until the autumn, when they gradually disappear. The nest is commenced in the spring from one bee only (the queen, of course). As soon as the weather is tempting in the spring she comes forth from her winter quarters. Queens make their first appearance about April. I have seen them in March; but those tempted to make their appearance so early mostly perish from want and cold together. When they come out first in the spring they have no settled place of abode—it is days, sometimes weeks, before they find a suitable place to build in. The first and second spoken of above generally take to a hole underground (the hole of a field-mouse is often chosen), and will be found from a few inches to ten feet along the surface of the ground—a pretty long walk for a 'bummie.' Whenever a suitable nest is found she (the queen) will make from three to five cells, and she loses no time in depositing eggs in them, and continues to go out and bring in honey and pollen until her young progeny is fit to assist her, when she soon after gives in and takes herself wholly to inside duty. In a good season they will increase to four or five hundred, or even more. The nest, which is a composite of very fine litter, is all lined over the inside with a soft, propolis-like substance forming a ceiling, which prevents any particles of litter or dust from falling in amongst the comb. In pulling the covering in two and laying it aside—but there is sometimes a difficulty in getting this done, as they will come out buzzing in all directions—you have a beautiful view of the comb, which has the appearance of a bunch of grapes lying on a table, and are of various sizes. By the end of June there will be three different kinds in the nest, viz. the queen, workers, and drones. The workers vary in size from a quarter to five-eighths of an inch in length, and round in proportion. The drones, as to size, are the same as the workers, but are the most beautiful of all. The yellow bands are broader, at least they show more predominant over the black; their face, or 'snout,' is of the same bright yellow, whence the name they are commonly known by is the 'Snippy.' They have altogether a very attractive appearance. In good seasons they are also pretty numerous;

* There are other varieties of the humble-bee, but I suggest they are hybrids, as one bee will be seen bearing marks of any two of the three distinct kinds spoken of above; and as a proof of their hybridising, I had the pleasure of once seeing two of them in the act of fertilisation. The female was a red, and the male a foggy-toddler. I cannot say whether or not if they came in contact in the air. They were on the ground when I came on them, and remained so till they separated.

* When a boy I once assisted a comrade to hive a nest, which he was very proud of. On his seeing mine one day, I of course showing them off to the best advantage I could, and no doubt boasting a little of their superiority over his, he exclaimed, 'I now, but mine swarmed yesterday, but before they swarmed they were as strong as yours.' I told him they did not swarm like my father's bees, but he insisted on it. I put a few questions to him about their clustering and where he put them, and so forth. His answer was, 'O, they flew away!'

and in my opinion, after leaving the nest they never return to it again. I have had large nests hived, and have watched them closely, but never saw a 'snippy' return after leaving. Unlike the drone of the honey-bee, they can forage for themselves. They can secrete honey from flowers; but I never saw them attempt to gather pollen. Another class makes its appearance about the end of July, which I suspect is the thing my friend Mr. Crisp takes for the drones. His description of them is all that is required. I would only venture to say that they are the future queens. (By this time the queen is easily known, as her fine downy covering is all worn off, and has a black polished-like appearance.) Like the workers, they are capable of gathering honey and pollen; but whether they at this stage gather anything for the support of the nest I am unable to say. At all events they do frequent it for a time (I suspect till they get mated), when, in the autumn, they are to be seen flying about in search of winter quarters, which are generally found about the roots of trees. I have come on them in winter simply under dry mulch. They are altogether a majestic-looking insect, and it is pleasing to hear their fascinating hum when they come out first in the spring.—D. Ramsay, *Baldovie, Jan. 23rd*, 1880.

[We exceedingly regret that the above could not (from want of space) appear with its companion letter in our last. This, the result of patient, practical observation, would almost appear to have been written since the appearance of that on p. 205; but they were both in type at the same time, each writer being without knowledge of the other.—Ed.]

COMB-FOUNDATION. — FACTS AND THEORIES.

Comb-foundation has proved itself of so much value that in a very few years it has forced its way into almost every apiary which can at all lay claim to be managed scientifically; and yet, that it is, notwithstanding its beauty of finish and regularity of form, far from perfect, is evidenced by the constant additions and alterations which are taking place in the article as it leaves the hands of the advertising maker. The perfecting of foundation, if that may be, would achieve greater things than we have yet seen; but before a perfect article is likely to be produced there must be a clear understanding of what Nature has put before us for our imitation; and it seems to me that almost all, if not quite all, of those who have had the matter specially in hand of late, have not understood, or have not considered, the philosophy of the shape of honeycomb, and so have laboured to give to their foundation a form which is not according to Nature's teaching.

Honeycomb, examined in its finished condition, is found to consist of numbers of cells, standing upon both sides of a common base we call the 'midrib.' Each cell is uniformly hexagonal in transverse section, and has three rhomboids placed edge to edge for its base. From this it would seem that it is concluded that the cells are as we see them because the bees intended so to build them. But, if the word 'intended' may be granted me for argument's sake, I reply, no conclusion could be more erroneous. The bees intended nothing of the kind. They would have made each of their cells circular in transverse, and ellipsoidal in horizontal sections, but that they have frustrated each other by mutual interference. That this intentional form (primal form, let us call it) is more perfect and better suited to the needs of the grub than the resultant shape is clear from considerations presently to be given.

That mutual pressure will convert circles into hexagons is proved in nearly every animal and vegetable organism. Let us take a few examples. In the compound eye of the bee each facet is six-sided, except in the case of those at its edge, and a few smaller ones, too far back to be much help to vision, and which are but imperfectly developed; these not touching each other are circular. In the pith of the elder the cells are hexagonal where crowded, and in the root of most ferns vessels are formed exactly like bee-cells by squeezing one another, as they grow together into a confused shape. And does not every child know that the globular soap-bubble touching its fellow is flattened, and flattens in turn at the point of contact? But the hive furnishes other illustrations which will come more fully home to us. Queens' cells, which are built singly, are of the primal form, all the dimplings on their surfaces are formed by curves, and not by angles; and every worker- or drone-cell finished, and containing grub or honey at the edge of the comb, is simply convex on its free side. When bees thicken the edges of their cells they so fill in the angles that the aperture is as nearly circular as hexagonal; while those who will hold before a light a piece of comb, from which two or three batches of brood have been hatched, will find that the exuviæ it contains have collected in the angles of the sides and base, so as to bring the cell back again towards its primal form, proving, as I before said, that this is most suitable to the needs of the grub. But is not all settled by simply looking at a piece of unfinished comb, when every cell is seen to be formed at first with a simple concavity for a base, and that the cell-walls in drone-comb, when first formed do not touch, and are then circular in cross sections, but as they are drawn more fully out, come into contact, and assume the six-angled figure at once? Some years ago when cutting down old comb in order to get casts in plaster, as described in 'Practical Bee-Keeping,' I found every cell had absolutely lost all trace of the rhomboids at their bases, the circle having in turn obliterated the hexagon, as the hexagon had at first obliterated the circle.

Considering the position that the primal form of the cell is bounded by curves, and not by straight lines, to be now established, I come to the consideration of the practical question: Should foundation as the commencement of comb, have rhomboids for the cells' bases, and hexagons for the walls, or should one or both of these be replaced by curves, or a combination of curves? My answer to the question is, that I am deeply convinced that the rhomboids and hexagons are an impediment to the bee, and a

cause of two serious drawbacks, at least, to the usefulness of the foundation.

It would almost appear as though some doubt existed as to whether, if circular concavities were impressed upon the wax-sheet, the rhomboids would make their appearance, but in natural comb the rhomboids do make their appearance from simple dimples by the reciprocal crowding of the architecture of the wax-workers. If a layer of india-rubber balls be squeezed together, they become hexagonal; and if now two layers be pressed one upon the other, they will produce the rhomboids, giving us from the circle the precise form and exact angles of honeycomb. Noticing this, I made plaster casts from layers of shot, painting over them while wet with hot wax. The sheets thus made were the foundation of all the combs in my supers in former years. Straighter combs than those produced from these sheets it would be impossible to obtain. Three frame supers, 18 in. deep in all, allowed the newspaper to be read if held behind any of the interspaces; but I could only get one side of these sheets of nice surface, and the bees did not so freely work upon the other, where sometimes misshapen cells were made. Nevertheless, these sheets were *always* THINNED down, while American foundation is often left *thick* and *coarse*. The reason of this is twofold, first, the pressure to which the wax is subjected makes it hard and dense, and the bees cannot so freely nibble it away. Natural comb, rather than consisting of dense compacted wax, is a weaving of shreds which are drawn out, and tempered into cohesion, as the examination of a piece of comb by the microscope will show at once, and which may be practically proved by putting, amidst a swarm, a dark and tough comb on each side of a half-finished one. The latter, as it now progresses, instead of being white and spotless, will be of a light chocolate brown from the interweaving of shreds from its neighbours. The second reason is that the premature formation of the angle at the junction of the incipient cell wall and the basal rhomboid has put the wax which forms the too thick base into just such a corner that the worker cannot well remove it by the scraping motion of the jaws, which gives shape to all comb.

An inspection of a sheet of American foundation just commenced by the bees will usually furnish abundant proof of this position, several of the cells towards the outside of the work having the circular outline instead of the hexagonal, while others outside these again will show how bewildered the bees are by the flat faces (which only finished work should have) where they are to commence operations, since, instead of paring away, they are simply sticking shreds of new wax on to the cell-wall somewhat to its inner side.

Space forbids my entering further into the matter now, and I must content myself by remarking that if the wax-sheets were impressed by convexities (segments of globes) occupying the right relative positions, we should have the following advantages:—

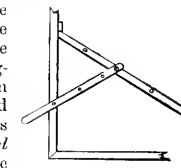
The sheets would be less likely to buckle during working. Each base would have three points much thinner than the rest, which would set the bees in a natural manner paring until the rhomboids were developed. The thicker portions of the sheet would not have been exposed to pressure, but would be of the nature of a burr, and in consequence more easily elaborated by the bees. The sheets would be tougher, and far less likely to crack in lines than those we now possess; while the machines for their manufacture would, I conceive, be less costly.

In commending these remarks to my brother bee-keepers, I only add, that my object in drawing attention to the defects of an invention which has been, and is, a great boon to apiculture, is the hope that the future may excel the present, for, after all, the spirit of dissatisfaction is in some sort the spirit of progress.—F. CHESHIRE, *Avenue House, Acton, W.*

HIVE IMPROVEMENT.

I think a great improvement as to feeding might be made in hives by having a zinc dish, or pan, just the depth of the floor-board, but only half the length, to slide in at the *back*, while the floor-board is gently slid forward in the *front*, to make room for the zinc dish, or pan. Syrup to be put in the zinc pan, with a *very thin* piece of hard wood (exactly fitted in the pan to float on top of the syrup), with small holes all over it for the bees to suck it up, without danger of being drowned, or smothered. This would prevent all waste, and be a protection from robbers. The floor-board might be made a little thicker, perhaps, for this purpose.

I think your porch, though a very good contrivance, is hardly large enough to protect the bees from a too-hot sun, or to shelter them in wet and windy weather. I have attached to all my hives, round or square, a shelter-board on hinges, with a bar on one side, to support it, and with holes to raise or lower it, according to circumstances (see engraving). There are pins in the edge of the shelter-board to fit in the holes of the supporting-bar, which may be of iron or brass. The flight-board is also five or six inches (*projecting*), and is *sloped* towards the edges, for the rain to run off. This is very convenient for the bees, especially in windy weather, when they come home weary, and are safe to alight on some part of the board. The shelter-board can be let down almost close, in very severe weather, when the bees are all at home.



I think both the zinc feeding-pan and the shelter-board here described would be very useful improvements. Perhaps a *cheek-board* fixed on each side of the hive, with the shelter-board to move up or down between them, would be a still greater shelter to bees. The board might be hung by a chain instead of a supporting bar. You are welcome to make use of these suggestions, if you

think fit, without attributing them to—CHAS. HUTCHINSON.

[The above most useful suggestion was offered last summer, when it was practically too late in the year to alter the fashion of hives, and the letter was carefully put away for use further on. So carefully was it stowed that we could not find it when wanted, but the appearance of other suggestions on the subject *necessitated* its forthcoming, and we beg pardon of our esteemed correspondent for the delay which has occurred in its publication.—ED.]

THE REGICIDES.

A bee-keeping friend, a comparative novice, was very much shocked during mid-winter's sharp frost to find the queen of one of his best stocks, yet in her prime, thrown out at the entrance a corpse, and consulted me as to what he had best do with these 'Home-rulers,' which he described as being in anything but a contented state. While the surrounding stocks were enjoying their peaceful comparative dormancy, the uproar at intervals in this stock was something fearful to listen to, and he was full of the idea that a free fight was going on for the vacant throne, Kilkenny-cat fashion. Fearing, so soon as the frost gave way, that the republican flag would be carried forthwith into the adjoining contented kingdoms, to their ultimate wreck and ruin, —a state of matters he felt quite unequal to cope with,—he asked my acceptance of the malcontents to join to any stock of mine I might think required an addition to its population. Having had some little experience previously of the eccentricities of queenless demoralised bees, I accepted the gift with some misgivings, and delayed joining them to my observatory stock, as I otherwise would, in their semi-dormancy, had they been in a frame hive; besides, I was desirous to satisfy myself, in the first instance, that it contained no young queen, the severe state of the weather rendering manipulation out of the question.

On the first day, mild enough for the bees to fly, I inverted the hive, cutting away the attachments of combs to both box and eke, and was thus enabled, after some little trouble to carefully scan the bees of every comb, without the slightest trace of the presence of a queen, young or old. After replacing the combs, I liberally fed both it and my observatory stock with similarly flavoured syrup, setting the former underneath the latter at dusk, and by drawing the intervening slides, accompanied with a good puffing smoke, the harmoniousness of the hum which followed gave promise of the successful union, which drawing the shutters in the morning revealed—the blacks fraternising amicably with the Italians to a wish; and it was not till the afternoon, when confining the conjoined population to one hive, I was terribly chagrined to find no trace of my specially selected imported Italian queen of preceding autumn. Home-rule yet once again dominant! Daily I searched for her amid the numerous dense black and yellow battalions without success; black royal cells being started right and left, confirmed my worst fears. A frame well filled with freshly laid pure Italian eggs, was forthwith borrowed from another stock, on which they raised, not the summer's usual swarming superfluity, but one solitary royal cell, about ripe while I write.

The reader may not unnaturally ask, at this season of the year, nearly four months before the appearance of drones, of what service can the coming princess possibly be? The stock is too well formed, in both population and store, for me to willingly let it go down without a struggle. 'Burned bairns dread the fire.' I dare not attempt introducing any more of my valuable queens to the 'Home-rulers,' neither care I to introduce their principles, by joining them to another stock, consequently, unless some good Samaritan, in the interim, sends me the queen of a stock, too weak to stand alone, for experiment, I intend to avail myself of that wise provision of nature by which the virgin queen is gifted to lay drone eggs, and having less faith in the puny sons of workers' cells, will take care to supply some frames set aside, and fortunately not yet melted up, with cradles to suit the most stalwart proportions, and so soon as there is a good batch of the male element in embryo, the coming drone-breeding princess shall be deposed, a frame of eggs again borrowed, but from an Italian hive of a different strain of blood. The princess hatched from this, No. 2, I have a good hope of getting fertilised from the drones of No. 1, having before now had the pleasure of seeing 'a March bird' upon the wing, indeed the only occasion, after some eighteen years' exclusive employment of the Italian, have I had the good fortune to obtain to a certainty pure fertilisation from a queenless Italian drone preserved stock, so thoroughly and numerously surrounded are we with the sable sons of the the land.—A RENFREWSHIRE BEE-KEEPER.

CYPRIAN QUEENS.

I have just received advice from Italy to the effect that the Central Association of Italian Bee-keepers has unanimously conferred on Mr. G. Fiorini the high honour of a gold medal for his introduction into Italy of pure Cyprian bees.

I need not point out the importance of this testimony to the value of Cyprians.—J. P. JACKSON, *Enfield, Feb.* 19, 1880.

THE OPENING SEASON.

The first day of the opening year was clear and fine, but much too cold with us in the North for a bee to show at the entrance: and so January continued till its close. According to the old Scottish adage,—

> 'If Candlemas day be clear and fair
> The half of winter's to come, and mair.'

But fortunately the 2nd of February was ushered in with thick, warm, spring-like rain, which continued till mid-day, when it cleared off, the sun burst out, and, the temperature rising to 50°, my poor imprisoned bees delightedly poured forth after over three months' close confinement, to enjoy their first free flight, and sport in the sunshine.

On the afternoon of the 4th, observing single

bees leaving their hives late in the afternoon, I concluded breeding had begun. The following day (5th) mildness continuing, I embraced the opportunity of giving all boards their second spring clean, which they scarcely required, so clean and dry were they, at the same time making a thorough overhaul of all, which proved most satisfactory, from their dry, well-beed, healthful appearance. Also found my breeding surmise correct: eggs in abundance in all. One stock, with an imported queen of last autumn, led off with grubs nearly ready for sealing; first cross-queens came next in order, and my solitary Carniolan queen, also imported last autumn, brought up the rear: but in common fairness I must record the fact, that from the large number of Austrian recruits, she must have continued to breed later in the fall than any of the Italians.

In such a spring overhaul I was mainly impressed with the value of keeping bees in colonies, deplorable as was the season of 1879; yet the 'rest account' of those powerful non-swarmers was so considerable, that they neither had nor required the slightest feeding, being amply found in surplus stores till the coming midsummer. While in the swarms and swarming-stocks, fed stores of autumn were so well-nigh exhausted, that I supplied them both with barley-sugar and candy (American flour-and-sugar plan); but they gave a decided preference to former, leaving the latter.

With every prospect, meantime, of an early, genial spring, the precursor, it is to be hoped, of so warm and honey-secreting a summer, as will increase the numbers, and fill the hives and hearts of our little favourites with gladness.—A RENFREWSHIRE BEE-KEEPER.

FEEDING.

I think I have seen in the *Journal* somewhere that frames of comb have been filled with syrup, and the cells covered with a coating of hot wax. I think about doing the same thing. Shall I run any risk or do any harm?

My principal reason is, of course, to save the trouble of filling a feeding-bottle every day. To those who are near their bees most of the day this is not much trouble; but to one who has to leave the first thing after breakfast in the morning for town, and in this time of the year does not get home till after dark, it certainly is troublesome.

If the plan I have spoken of would not do, I suppose it would be best to use a large bottle over the feeding-stage, to save the trouble of refilling often. After reading the *Journal*, as it comes month by month, one feels quite enthusiastic about bees and bee-culture, even at this time of the year, when so little is seen of them.—W. W. H., *Loughton, Essex.*

[There can be no harm arise from your trying to seal some honey or syrup in combs artificially. We have done so repeatedly. We fill the combs as they lie flat on the table with our syrup-can, that has a nozzle with quill-like arrangement, that permits the syrup to flow in very fine streams only, and by these it can be directed to any of the cells. When full, but not to overflowing, boiling hot wax is smartly painted over the surface, leaving a film, that when cold is sufficient, and can be removed by the bees. If syrup-feeding is too much trouble, an evening at barley-sugar making would facilitate matters. At an ordinary kitchener hot plate 20lbs. of loaf-sugar can readily converted into barley-sugar, in one evening, almost without loss of weight, and if kept dry in tins, it can be fed most easily. Large bottles of syrup are not recommended. When about half full, the volume of air in them is acted upon by heat and cold in too great a degree; cold causes the air to shrink and draw outer air into the bottle, and a warm change expands it and forces the syrup out amongst the bees, to their discomfort.—ED.]

BEES AND NEW ZEALAND.

As England's hive is getting so over-crowded, I (taking a hint from the bees) purpose, about midsummer, heading my swarm off to New Zealand. I have read with interest Mr. Jenner-Fust's letter in this month's *Journal* on the humble bee, and its introduction into New Zealand. I shall be too late in the season for carrying out his plan, but shall be glad to learn from Mr. Jenner-Fust, or any one interested, whether I can in any way render assistance.

Can any of your readers say if Ligurians have been introduced? If their tongues are longer than the English bees, as Professor Cook says, and they *do* work the red clover, would they not serve the purpose of fertilisation?

I have read in Cotton's *Bee Book* a description of the three different plans he proposed to adopt in taking bees with him to New Zealand, but cannot find out which plan, or if all three were successful. Of course his elaborate preparations would be too expensive for me to think of, but if a queen with a moderate number of attendants can be kept alive during the winter in a small box, would not the same plan do for a three months' journey by sea? I believe that a nucleus in a small box, placed in a larger one, kept dark, and well ventilated, and allowed a flight now and then, on fine days, would survive the journey. I hope yourself or some correspondent will kindly favour me with the benefit of their opinion. My bees (nine stocks) have got through the winter all right, and I saw two of them carrying pollen on the 18th inst.—CHARLES CHAPLIN, *Westbury-on-Trym, near Bristol.*

[We believe Ligurians have been introduced into New Zealand, but cannot state positively. If Professor Cook's assertions are doubted, few, we fear, will care to offer their experiences, lest they in turn might be questioned. Those who report that bees work on red clover, often refer to the reddish-coloured blossoms of the Alsike clover. We should have no hesitation in undertaking the transport of humble or other bees to New Zealand or elsewhere, if, as our correspondent suggests, the preparations were not too costly to make it a paying enterprise. We should fear, and principally provide against, the worrying effects of the steamer's jarring, and the sailer's rolling, heeling over, and general disturbance. But for these, we see no reason why the plan proposed should not answer.—ED.]

UNCAPPING MATURE BROOD.

In answer to Mr. Lawson Sisson, p. 188, I may state that for many years I have kept bees in unicomb hives, though unfortunately without ever succeeding in wintering a stock successfully. I

have witnessed *hundreds* of young bees issue from their cells, and in not a single instance have I ever seen the old bees render them any assistance, but on the contrary running over the heads of the poor struggling little captives, apparently as regardless of their comfort as though they had nought in common.

My experience has been that the young workers —and it is only with the *workers* that I have had any experience—extricate themselves, without any external aid, by their mandibles and fore-legs. Many times have I seen the young bees, half in and half out, gripped tightly round the thorax, apparently struggling for very life, for five or ten minutes, without the slightest intervention on the part of their more fortunate sisters. That the bees will clear out the cells immediately the young have issued from them is well known. The caps of the cells which the young bees gnaw away previous to issuing, fall on the floor-board, to be either carried away in the form of wax-dust, or if needed, used up again as the bees require them. I am making a new kind of Unicomb Hive, and shall fix a heating apparatus to it. Should it answer well next winter, I will let you have my experience. Alas! for the poor bees in this neighbourhood, there will not be left one stock out of twenty alive, the cottagers cannot be induced to feed them, though they well know there is little or no honey in their hives. One man here took in November four stocks—of course killing all the bees—and got five ounces of honey from the four. Unfortunately I heard nothing of this wholesale murder until after it had happened, or I should at any rate have saved those valuable lives. My three stocks are very strong, and have plenty of sealed syrup. Let us hope a good season is in store for us.—Alf. F. Booker Hill, *Whissonsett, Norfolk.*

DRY SUGAR FOR BEES.

A month or two since I noticed in the *Journal* a remark that bees would not take dry sugar, and if so, how can you explain the following, for the truth of which I can vouch?

A short time since in a town, North Carolina, a friend of mine was using a candy factory, and as a large number of bees are kept in the neighbourhood, the windows were in the summer covered with net. One day the net was by some means removed from a window, the consequence of which was the factory was very soon full of bees, so much so as to materially interfere with work. It being a slack time, work was suspended for three days, and the place closed with exception of the aforesaid window. All goods were carefully covered and secured; but a flour-cask, containing sugar sweepings and broken candy, was purposely left open, the result being that at the end of three days the cask was emptied of its contents. The neighbours said their bees had never made honey so fast as that time.

The country people here are in the habit of feeding their bees in winter with dry sugar laid on the alighting-board, which they carry quickly inside.

We must endeavour to do something towards the increase of bee-keeping in this part of Sussex, as the district is good and ought to support a large number. But our cottagers have not yet emerged from the 'Dark Ages' of this science. A visit of the Bee Tent to our summer flower show would be a good idea, with an exhibition of hives and appliances.

I fed my bees early in the autumn, and to judge from the show they make on sunny days I should think they are doing well.—F. Strickland, *Hailsham, Sussex.*

[We repeat that bees cannot take dry sugar, nor will they attempt to do so. When it is moist from dampness (moistened we ought to say) they will suck out the moisture and some of the saccharine matter with it, but dry sugar they always refuse. If it be given within the hive they suck out what they can and waste the rest. They must have had some assistance on emptying the sugar tub, or its contents were not dry.—Ed.

ZINC FOR 'RUNNERS.'

In the December No. of *B. B. J.* you deprecate the use of zinc for runners for frames, in consequence of the condensation of vapour caused by the metal, and also the poison contained in the oxide: yet in your Combination Hive you use a sheet of queen-excluder zinc in the centre.

Why are a couple of narrow strips at the top sides more injurious than a sheet the size of the hive in the centre? and would not a coat of varnish or paint remove the objection?—F. Strickland, *Hailsham.*

[This looks like straining at a gnat and swallowing a camel; but the camel—the big sheet of perforated zinc —is not present at the time of year when we object to the use of zinc or other metal within the hive. The queen-excluder is for summer use only. Coating the zinc with paint or varnish might be of use in preventing oxidisation, but would not prevent condensation.—Ed.]

BEE POISON AND ITS ANTIDOTES.

I can fully sympathise with Mr. B. Browne, since I suffer from bee-stings in the same way as he does. I have tried the whole list of common remedies without finding them of the least use. I have now adopted 'Amm. Acet. fort.' I prick or lance the place, and apply a rag dipped in the ammonia. In a short time the swelling ceases, and I experience no further inconvenience. I shall be glad to hear if Mr. B. Browne finds this remedy efficacious.—W. J. Drake.

RAT IN A HIVE.

Have you, Mr. Editor, ever found a rat in any of your hives? If so, kindly say, for the benefit of at least *one* of your readers, how you think it got there, and what means you adopted to crush the animal. A very intelligent (but *you* may wish to add negligent) bee-keeper called on me yesterday to relate the very sad result of the examination of his apiary, —the first, I believe, since Long Sutton Show. However, the sun being bright, the thermometer at only about 27°, he turned out, and on looking into one of his straw skeps found the bees *out* also, and

a rat *in*. Being the lucky owner of a first-rate terrier, he at once determined to go in for a bit of ratting. After getting all placed, with great courage the hive was turned up, when out jumped the rat and bolted, leaving the astonished ratters to themselves, and rattie free to occupy another hive if the entrance only be kept large enough, which no doubt it will be.—R. R. Godfrey, *Grantham, Jan. 28th*, 1880.

POLLEN CARRYING IN RELATION TO BREEDING.

Is the carrying in of pollen a sign that breeding is going on in the hive? Judging from a little experience I have had during the present month, it seems that this is not always the case, though as collateral evidence the collecting of pollen may perhaps be of some value. On July 29, 1879, I drove the bees from a large skep into a clean hive in order to get rid of the wax-moth which had gained the ascendancy in the former. In a few days the bees began to carry pollen into their new quarters, and I therefore judged that the queen was present, and that the work of the hive was going on all right. I fed slowly on that day until August 25th, when I turned them up, and finding they had only filled about one third of the new skep with comb I began to feed more rapidly, and covered them down snugly with warm wraps to induce comb-building. This continued during September and until the middle of October, when they refused to take more syrup, and the feeder was withdrawn. All this time on fine days the bees were noticed carrying in pollen, although the presence of the drones seemed to indicate that the hive was queenless. The killing of drones in the other hives was finished on the 4th August, but in the one in question they were permitted to remain until the frost set in on November 12th, when in the early morning they were found scattered in front of the hive. The hive has not been disturbed during the winter on account of its feeble condition, the bees being last seen out on Dec. 23rd (the last fine day we had in the old year); but on January 31st, the temperature having risen to 50°, with bright sunshine, a general examination took place, and my feeble friends were found to be all dead. I cut out the combs (about half filling the hive), finding plenty of stored food, but no sign of brood ever having been reared since its occupation. The empty combs were pure and spotless, and I could not find the cast-off skin of a single hatched bee. There was plenty of pollen in the hive, and the honey-combs were perfectly sealed. After the combs had been examined I collected all the dead bees and went carefully over them in search of a queen, but I need scarcely say without success. Now this hive had evidently, I think, been queenless from the first, and no breeding could therefore have possibly taken place, yet pollen had been carried in and stored in the usual way. Is this an instance of mistaken instinct on the part of our little friends, or was the pollen stored as food for the adult bees? Anyway it seems pretty clearly to indicate that when pollen is being carried in by the bees it does not necessarily follow that breeding is going on in the hive.—W. Sissling.

[It is quite understood that bees will carry in pollen without breeding: but the question at issue is, Can they carry on breeding without pollen or its equivalent?—Ed.]

DOMESTICATION OF THE HONEY BEE IN ENGLAND.

At the earliest period the Anglo-Saxon was probably more anxious to domesticate bees than horses. Their produce was an article of food, necessary in brewing mead, and used extensively in medicine.

In the sixth and seventh centuries bees were altogether wild. They swarmed in the woods, and formed their honey-combs in hollow trees, and were at first classed by law with foxes and otters, as incapable of private ownership, because they were always on the move. Any one who found them had a right to the honey and wax: though, from several ecclesiastical regulations in the seventh and eighth centuries, we may infer that their capture was a dangerous amusement, and that their half-naked captors were often stung to death. A favourite mode of taking them was to cut down the tree in which they were, saw off the part containing them, and carry it home. But as the country progressed in wealth, bee-keeping became more profitable.

The clergy earnestly encouraged it, teaching that bees 'had been sent from heaven, because the Mass of God could not be celebrated without wax.'

The first step towards their domestication was the formation or imitation in bark (Lat. *rusca*—hence skeps are often called ruskies) of the hollows of the trees in which they are found.

After a short time a wild swarm became the quasi property of the trees in which they had settled for three consecutive nights; but if he failed to discover it within that time, the finder had a right to fourpence, and if it were not paid to keep it himself. This shows the difference in value between the wild and domesticated swarms, as a *rusca* of bees was worth six times fourpence.

About the middle of the tenth century, slaves (whose duty it was exclusively to attend to bees, and were called 'beo-ceorls') were ordinarily attached to wealthy establishments; and from the position of slaves they soon became servile tenants, whom their lord provided with a stock of bees, for which they paid a fixed amount of produce for life, the swarms continuing the property of the lord.

We also find about this time the Anglo-Saxon word *beo-cist* (bee-chest) and the Latin *alvearia* usually substituted for *rusca*, from which it may be inferred that these rough constructions were superseded by regular hives. Not long afterwards the clergy induced Edward the Confessor to tithe bee-hives—an evidence that they had become numerous and valuable, which is confirmed by Domesday Books, where they are repeatedly mentioned.

But bees were never more than semi-domesticated, nor ever altogether private property; as if they flew away, and the owner did not recapture them within a very short time, they belonged to any one who could.—*Notes from a paper by John Thrupp, Esq.* 1865, *Farm Journal.*

Echoes from the Hives.

Hungerford, Jan. 24.—'Thanks in a great measure to what I learn from the *B. B. J.* my sixteen stocks of bees are all alive, and, as I believe, well so far. It is too soon to begin to crow, but I am sorry to say that great numbers of cottagers in this neighbourhood, who have something like a *religious* objection to feeding in the autumn, have lost their bees. If, after all that I have given them, I lose mine, I shall become the laughing-stock of the country-side. The rural mind in these parts is very from being convinced as yet of the wisdom of the new system, although it has several exponents more or less successful within a radius of four miles. It is rather unfortunate that it should so often fall to the lot of parsons, who are so generally thought to be at least wanting in worldly sense, to be pioneers in apiculture. In this, as in more important matters, no one believes our report.'—J. H. D.

Wellingborough.—Ligurianizing.—'I see by your leaflet how to ligurianize black stocks, but these stocks will not become pure, I suppose, as the queens when hatched will mate with black drones, which may be in their hives or others; would it do to cut out the drone-comb in the black bee-hive, and destroy the drones in

them before inserting the Ligurian queen-cells, then they would only have the drones from my proposed Ligurian swarm to mate with: but I am afraid it is impossible to change my black bees into pure Ligurians.'—G. H. P.

[By the generally accepted Dzierzon theory the drone progeny of a purely bred Ligurian queen is as pure as herself, fertilization having no influence on its productions, and consequently all the future drones of a 'ligurianized' apiary will be Ligurian, though the young Ligurian queens may have found black husbands. In a second season, therefore, there will be no English drones in existence within, though there may be *outside*, your apiary; and even they may be made scarcer by the introduction of ripe queen-cells to neighbouring stocks that have swarmed, or become queenless. The introduction of a RIPE queen-cell immediately on a swarm issuing, will very often prevent after-swarms issuing, and if of Ligurian breed will effect a valuable double object. In writing of 'ligurianized' apiaries we use the term as implying that the Ligurian queenly element has been safely introduced, in opposition to the chance tinge the bees may have through a black queen having mated with a Ligurian drone. Preventing drones is comparatively easy: cut out the drone-comb and fill the vacancies with worker comb, or comb foundation; this will reduce the number of drone-cells, and those the bees insist on building can easily be controlled. Slicing off the caps of sealed drone-cells and giving the comb a shake, open cells downward, will rid the comb of them, but prevention is better than cure. Young queens show their instinctive hatred of in-and-in breeding by avoiding their own relations as far as possible, so it is scarcely probable that black stocks would become 'pure Ligurian' in the first year, but by having a variety of strain the Ligurian breed may be bred pure, and *kept so*.—ED.]

Weight of Honey for Wintering.—'Also I am told there should be from 20 to 30 lbs. of honey to winter a hive; this would necessitate perhaps all the bars of honey being left in: but we are also told to contract the space in the hive in winter, evidently both can't be done; which is right?'—G. H. P., *Feb.* 2.

[During winter, be it ever so cold, bees consume very little honey if they are able to cluster snugly and preserve the heat they generate. We have preached against open-ended frames for years as being the least helpful to them in this respect; but diverse authorities, while ignoring our suggestions, practically carry them out by diminishing the number of the frames, and forcing the bees to occupy all the space between and around the few frames they allow them to live in. In a natural bees'-nest the upper part is formed as it were in an inverted basin, divided into galleries by the combs, and in these the bees live and move at pleasure, their winter cluster being in the form of a ball, or a hemisphere, as circumstances necessitate; and in such a home, though they may have the range of six times as many combs as they can occupy, they will consume but little food, not more than a few ounces per week, because the heat they generate will not be able to escape upwards or horizontally past the ends of the combs. In a bee-nest proper a large consumption of honey will not be likely to take place unless breeding is going on rapidly; but in a cold hive, *i.e.* one in which the heat can readily escape, much honey is required to prodnce it anew, with *dysentery* as the common result of the excess.—ED.]

Middlesbrough, Feb. 19, 1880.—'I have one hive of pure Ligurians which were weak at the end of autumn, but thanks to your plan of frames across the hives, and closing the spaces between the frame ends, coupled with careful feeding at the beginning of November, have kept them alive, and they are now very lively.—E. C.'

Whithorn, Wigtownshire.—'The Ligurian queens are both alive and breeding, also the hybrid I bred from one of them. I had foul-brood in a skep last spring. I buried the comb and put the bees into a frame-hive, and they came up to a strong hive in the autumn, and are now strong and breeding. I saw a bee with pollen yesterday (Feb. 19); May was the month in which I saw one first last year. Please say if you have been successful with the wooden foundation, and if you will have it for sale. What is your opinion of the wire-foundation, does it answer as well as wholly wax?'—THOS. MARTIN.

[We have been successful in using wood simply dipped in wax, without impressing it, the bees having built comb upon it, bred, and stored honey, so there can be no shadow of doubt as to the success of the principle. We have not been able to procure nails of the right size to carry out our original plan; but have every faith that we shall have perfected the idea in time for this year's swarms. The wire-foundation is undoubtedly a success, but it is rather expensive.—ED.]

Nottingham, Feb. 23rd.—'On January 31st, we had the first indication here of returning spring, the day was bright and sunny, and the bees made their appearance for the first time this year. February, so far, has been mild and showery, with bright gleams of sunshine the middle of the day. Our bees are now out daily; but there are, of course, no flowers yet for them to visit. They, however, accept pea-flour when offered to them in bright weather, and all seem to be going on well.'—W. S.

Cheltenham.—'I did not get a pound of honey last year, and very few swarms, and they ate last autumn a ton and a half of sugar. I expect good stocks will make three guineas each. It will take twenty years to get up the usual stock of bees.'—T. B. B.

Queries and Replies.

QUERY No. 332.—*Queen-raising.*—I wish your advice in regard to raising queens, and keeping them for future use. I have for some years practised artificial swarming, and have often had four, five, and six spare young queens; and what I want to know is, how can I keep them after they are hatched out? Say the hive is examined a few days after artificial swarming, and contains five royal cells, one will be required for the parent hive; and if my other hives are not ready for swarming, or a wet time sets in, and I am prevented from cutting out the four other royal cells, how shall I prevent the worker bees or the first queen hatched from destroying them? What is usually done in such a case? Is it the proper way to place a small wire cage over the royal cells pressing it into the comb? and if I did so would the worker bees feed them while so engaged if they had a young queen at liberty on the combs? Again, would they be likely to eat away the comb, and let them out? Or is the usual way to encage them on the top of the hive? If so, would you describe the kind of cage or box in which they are placed, and if the royal cells are put in before they are hatched out; or in other words, in what stage of development are they put in; and will the worker bees feed them so encaged?—G. GREEN, *Eagle, near Newark.*

REPLY TO QUERY No. 332.—The obvious mode of preventing most of the ills prospected is to delay the first artificial swarming until the other stocks are within a few days of being fit for similar treatment. Natural swarming, however, often occurs, and places one in the difficulty indicated. Ripe, *i.e.* fully sealed, queen-cells should be removed by cutting out the portion of comb upon which they are raised, if it is intended to preserve them. They should then be fastened to a piece of comb with honey on it, and placed in a box with a handful of bees, and kept in a warm place with a moist atmosphere. No better place can well be found than the top of their own hive, where, provided the heat of the hive passes through the box, the hatching will duly take place. Four boxes, say three inches square (cube), with a wired corner hole, might be so arranged with the corners

together over the ordinary feed-hole, that each would get a share of the heat from below. It is not safe to trust to worker bees feeding unfertile queens, they will generally feed themselves. It is better to catch the young queens as they hatch, if possible, and imprison them, and so prevent cutting the comb.—Ed.]

Query No. 333.—*Dysentery, Open frame ends, Salicylic Acid.*—Last September I transferred a colony of bees from a skep into a bar-frame hive, and fed them for about six weeks on sugar and water (thick) which they sealed up nicely, and I thought they were right for winter, but the first week of February I found them all dead, although they were all right a fortnight before. Can you tell what it was that caused their deaths, although the inside of the hive was covered in spots with their excrements? I cannot think that it was dysentery, as they sealed their food up so well. Kindly tell me what is the best thing I can do with their combs, sealed up as they are. About a week after transferring the above, I served two other skeps similar with the exception of uniting them, and they did very well until the first week in February, when I found more than half dead, although they were alive the week before. Should I be right in filling out the above frame-hive with sheets of foundation? Is salicylic acid injurious to bees?—W. J. G., *Ottery St. Mary, Feb.* 28.

Reply to Query No. 333.—We have but little doubt but that dysentery (or as Mrs. Harris would say, 'abominable' distension) was the immediate cause of death, probably led up to by old age, and a scarcity of pollen in the hive. Whatever others believe will not alter facts; and whether the disorder from which they suffered be called dysentery, or 'abominable distension,' matters little, it is caused by the bees taking unwholesome food, or food unwholesomely. We have been somewhat puzzled to account for dysentery in a stock of bees in a dry hive well supplied and properly quilted, the property of Mr. R. R. Godfrey, of Grantham; they were our beautiful first prize Ligurians of last year, and worth all the trouble it was possible to bestow upon them, yet nothing seemed to stop their then disorder, until our thoughtful friend tried them with artificial pollen scattered on their alighting and floor-board. The absence of pollen in the hive forced the bees to consume themselves in their heat-producing labours, and their systems were doubtless weakened beyond nature's power of endurance. Dysentery is often the finale of prostration and life in humans. The bees in plain boxes are in warmer quarters than are those in open ended frame hives. This is a well-worn subject in these columns, and until frames are altered in fashion, or their ends closed for winter use, as so often recommended herein, we shall feel obliged to keep it before our readers. Salicylic acid is beneficial as a medicinal agent, as is alcohol to humans, but one may have 'too much of a good thing.'—Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

T. F., *Enfield.*—Bees usually throw out their dead during fine days in winter, so that the appearance of a few outside is not an alarming symptom. If there is any doubt as to the queen's existence, the hive, being a bar-frame, can be opened on a fine day and her presence (or absence) ascertained by actual observation. Should she be absent a queen may be given at the first opportunity, or a weak stock may be obtained and united. Do not interfere with them unnecessarily if they be queenless, but let them live without wear and wasting power until you can give them substantial help in the form indicated.

*** *Communications from* A Country Parson, A. Neubert, William Carr, H. Warren, David Ling, *and others, are in type. We have given four pages extra this month, but have been obliged to postpone the above till next month.*

CATALOGUE OF HIVES, &c., to be SOLD by AUCTION, on Wednesday, March 24th, at 12 for 1 o'clock, at FAIRLAWN, SOUTHALL.

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Lot

1. Two Bar-frame Hives, for collateral use; twelve large frames.
2. Two Cottager's Woodbury Hives, ten frames.
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4. Two Original Cottager's Hives, combination principle, small frames.
5. Two Cottage Woodbury Hives (no legs), ten frames.
6. Two Hives on legs, Abbott's Standards, eight frames; pattern 1874.
7. One Lanarkshire Hive (unused).
8. One Handsome Rustic Berkshire Bee-shed, to hold two hives (nearly new).
9. Two Berkshire Hives, and four Supers to ditto.
10. Four sets of six new Sectional Supers.
11. Three sets of seven each, not new, ditto.
12. Six Abbott's 1*s.* Feeding or Honey Jars.
13. Two Hives, similar to Lot 1.
14. Two Combinations, similar to Lot 3.
15. Two Standards, similar to Lot 6.
16. Four sets of Sections, similar to Lot 11.
17. Two Hives, similar to Lot 2.
18. Twelve Abbott's 6*d.* Feeding or Honey Jars.
19. Four sets of six Sections, not new.
20. Five Honey Jars, and Sundries.
21. One Stock of Bees in Bar-frame Hive.
22. One Bell-glass, and six Stoppered Bottles.
23. Two Poole's Prize Feeders, and three Plum Jars.
24. Six Abbott's 6*d.* Feeding or Honey Jars.
25. Two Hives, similar to Lot 1.
26. One Combination, similar to Lot 3.
27. One Combination, ditto, with Bees.
28. Four sets Sectional Supers, similar to Lot 19.
29. Two Hives, similar to Lot 2.
30. Two Standards, similar to Lot 6.
31. Eight Sections with glass ends.
32. Eight small Honey Boxes.
33. Four sets of six Sectional Supers, similar to Lot 19.
34. One Hive, similar to Lot 1.
35. Two Cottage Woodburys, similar to Lot 5.
36. Six Abbott's 6*d.* Honey Jars.
37. Four large Honey Boxes.
38. Two large Nucleus Hives.
39. Three Woodbury-sized ditto.
40. Two half-sized Standard ditto, two ditto Woodbury.
41. One Woodbury Hive with Bees.
42. One Standard Observatory Hive, one Frame.
43. Cottage Woodbury, similar to Lot 5.
44. Four Chaff Cushions, wood frames.
45. One Woodbury Observatory, one Frame.
46. Two Crown-boards, wood and straw, and two zinc Dividers.
47. Nine Crown-boards, and Sundries.
48. One Stock of Bees in Bar-frame Hive.
49. One Woodbury Observatory, one Frame.
50. Eight round Floor-boards, one square ditto.
51. One Wax Melter, one Syrup Can.
52. One Neighbour's Improved Cottage Hive.
53. One Murphy Centrifugal Honey Slinger, with Treacle Valve, all complete, best pattern, equal to new (imported).
54. One crate of Sections, two Supers.
55. One Stewarton Hive, three Body-boxes, one Super.
56. Three Hexagonal Hives. One Octagon ditto.
57. Two Skeps, five straw Supers.
58. One large Crate of Supers.
59. Two double Wire Frames, for Slinger.
60. Thirteen zinc Covers for straw Skeps.
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62. Lot of Sundries.
63. Sundries.
64. Sundries.

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THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 84. Vol. VII.] APRIL, 1880. [Published Monthly.]

Editorial, Notices, &c.

APRIL.

March will have passed away ere this appears before our readers, and of it we are glad to be able, as we are willing, to make a favourable report. Commencing with a fine mild day that brought the bees out gaily, it continued favourable in their behalf until the 17th, no rain having fallen except on the night of the 3rd, and during all that time they were able to gather abundantly from crocuses and the 'big sunflower,' to which the skep of shavings and pea-flour has been aptly likened, and right merrily did they embrace every opportunity that offered. Later on the pollen-bearing willow palm shared their attention, but a cold east wind considerably hindered their labour, by preventing its development; while the rapidly-increasing brood-nest rendered their presence at home necessary as heat-producing nurses. The deplorable results anticipated in many minds through the absence of pollen consequent on the comparatively sunless year 1879 were by no means fulfilled. As a rule, bees well supplied with honey (or syrup) wintered better than in previous years when pollen has been abundant, and have maintained their freshness and vigour to a surprising degree. There have been few deaths and very little dysentery (our bees have shown no signs of it); and but that we hear of many cases of foul-brood, we could report cheerfully of the hygiene of apiculture in a general sense; bees uncultivated and uncared for not being included. Never in the history of British apiculture has there been a season in which the principles of bee-*culture* as compared with their systematic neglect, have been so triumphantly established, or more prominently proclaimed; and we trust the experience so dearly purchased will not be misapplied. It has been costly to individuals, and their losses as such must be deplored, but to the country at large the loss is simply immense, the industrious insects—real wealth-producers—are lost to the nation, and lost, too, through the most culpable of causes, gross national ignorance,—a disgrace to our government, and a libel on our boasted enlightenment and civilisation.

USEFUL HINTS.

Weak Stocks.—There will surely be some stocks in the best regulated apiaries not in such good condition as others; and amateurs will often be puzzled to determine what course to adopt concerning them. Queens at this time of year are scarce, and their owner is naturally unwilling to permit their wilful destruction, or risk their loss by uniting, if it can be prevented. While some stocks are very weak, others in the apiary may be abnormally strong, and early; and an exchange of combs in such case may be advisable, otherwise we are averse to the levelling down principle. If this be not practicable, the queen of one stock, and a few of her workers, should be removed and put into a queen-box or cage, with a portion of comb-honey, and kept in a warm dark cupboard, and the bees of both lots united. When the first swarm comes off, or an artificial one is made, the queen may be utilised by being given to the newly swarmed stock.

Queenless Stocks.—These are always weak at this season, and it is very difficult to re-queen them, as the bees, being old ones, will not readily accept a queen, or raise queen-cells if brood be given. If sufficiently numerous and healthy, we would keep the bees alive, and as quiet as possible, to preserve their energy, and when ready would swarm an early stock and interchange their combs. Practically, this is giving the weak lot full combs for empty ones: the swarm gets the empty combs on their own stand, and the queenless bees the full combs from which to raise a queen, and both, as a rule, will flourish. Drones ought to be flying when this is done.

Transferring.—The lovely weather of early March brought the usual 'heap' of inquiries for directions on transferring, so eager are those who have learned the advantages of the moveable-comb principle to get their bees into moveable-comb hives; but in no case did we advise such early disturbance of the well-doing hive's economy. The bees, after such trying times as they have lived through, need all the care and help that can be afforded to them, while their numbers and strength are being *tried* by the production of their first hatch of brood; and the disturbance, damage, and repairing rendered necessary by the process of transferring, followed by the cold weather —which is inevitable ere summer weather sets in—would probably kill the enfeebled stocks outright. Let the bees breed as snugly and comfortably as is possible for the present, and when the population is composed of young bees, and the weather reasonably fine, transferring may go on with impunity.

Feeding.—Those who find a difficulty in making syrup that will not re-crystallise out of the foreign sugars with which our markets are glutted, will do well to convert it into barley-sugar by the process described in on p. 154. Barley-sugar run into small bottles while warm, is excellent for slow feeding, and if broken in pieces when cold, and put loosely where bees have free access, it can be taken rapidly.

Hard Sugar in Feeding-Bottles.—When sugar crystallizes and sets hard in the neck of the bottle, it is difficult to break it out without injuring the bottle; but if it be placed neck downwards in a soup-plate half full of water, with the mouth slightly raised off the bottom, the sugar will dissolve, and by its own weight will slide out of the bottle, and the water will take its place. This is an interesting experiment. If the soup-plate be nearly filled with shingly stones and water, the bottles will give down their sugary contents and form sweet fountains for outdoor feeding purposes.

Tin Separators for Sections.—These are much in vogue, but we infinitely prefer those made of wood, which are less expensive, cleaner, non-conductors of heat, and give the bees better foothold as they move over them with their loads of honey. Tin is liable to rust, and when rusty is not desirable for use, and is very difficult to clean; its cost is much against it, as, for many reasons, it is only fit to be used once. Wood, on the contrary, is clean, sweet, and wholesome, so cheap, that when once used it is good for firewood and worth something, while rusty tin is a nuisance, and when used without cleaning, may spread disease from hive to hive. It is a fact that wood separators are much preferred in America by those who can afford to buy them: but there is a patent which protects the inventor of the method of making them. In England, every importation of American goods is ransacked to find them, but like the flat-bottomed foundation, the manufacture is a monopoly, and they cannot be easily obtained. At Kilburn, last year, a Hetherington Hive was exhibited by Mr. Newman, and purchased by Mr. Hooker; it was announced as the best American hive, and its sections were divided by thin wooden separators, each rather smaller than a section-box, and kept straight and in its place by very narrow tin strips, which were let into the thickness of the wood (thinness, we ought to say, for it was not more than $\frac{1}{16}$th of an inch thick), and had their points pressed into the sections. They were fragile, but only expected (we should think) to be used once, so could not, therefore, be the means of communicating foul brood. We have said that wood is cheaper than tin. The latter costs about sixpence per foot super to the retail purchaser, the former can be had for about a halfpenny, and we will send a specimen of the kind we use to any one sending stamped envelope. It is formed by sawing a plank three inches thick into twenty-one boards, so nineteen out of every twenty-one are perfectly clean and new on both sides, and so thin that they may be readily cut with an ordinary pair of scissors. Half-a-crown would buy forty-two pieces, each 18 in. long, and 11 in. wide: cheaper than lucifer-matches!

ILLUSTRATIONS OF QUEEN, WORKER, AND DRONE BEES.

PREMIUM OFFERED.

Have any of our readers ever seen illustrations of bees that look like what they are intended to represent? We have not, though we have seen many curiosities purporting to be such, and not a few monstrosities that needed the explanatory addendum, *This is a bee.* We trust we shall not offend by these remarks, they are certainly not intended to be personal; and those who consider their engravings perfect may, if they please, believe we have not seen them; but, to stimulate to the production of pictorial bees, that may be easily recognised, we offer a premium of two guineas for the best drawings or photographs (on paper) of the queen, worker, and drone. They must be of life size, in perfectly natural positions, each distinct, on a piece of comb, the queen and worker on worker-cells, the drone on drone-cells, and they must appear *at rest.* We mention this because we do not want to exhibit any special feature, sprawling wings or legs, or fancy delineation of colour, but just respectable

middle-aged English hive-bees as they are commonly seen; that they may be as commonly recognised.

The drawings should be sent to us on or before the 10th June, the *incognito* of the artist being secured by a motto. The approved drawings will be engraved, and published in the July number of the *B. B. J.*, and the artist recognising his work shall have the premium on sending a reproduction of his motto to our office on the 10th of July. Unsuccessful drawings may be reclaimed before the 17th of July either by letter, in person, or by messenger, and the production of the motto and description of the drawing (should two mottoes be alike) shall be our sufficient warrant for giving them up. Those not claimed within the time shall be forfeited.

THE LAW RESPECTING BEES; ARE THEY A NUISANCE?

A valued correspondent and prominent bee-keeper is in trouble about his bees: he has them in a part of his garden which adjoins the orchard of a neighbour (?), who lives in a cottage near. Between the cottage and the ground set apart for the bees, the gentleman's garden, seventy-four feet wide, intervenes, the bees being eighty feet at the least from the cottage. Now it happens that the gentleman neighbour was stung last autumn by a bee or a wasp about sixty yards from the apiary; and in the belief that the stinger belonged to the apiary in question, he is threatening to proceed against the owner on the ground that the bees are a nuisance. Our correspondent hopes that amongst our numerous readers some one will be good enough to explain the law, if any there be, on the subject. He is unwilling to be the cause of offence to his neighbour, but his bee-keeping is a source of considerable profit to him, and he is very loth to give up the pursuit. It would appear to be a difficult matter to identify the owner of a bee, the latter being near sixty yards from any known apiary; and we should be inclined to feel 'easy' about it.—Ed.

AMERICAN BEE PERIODICALS.

We have ever been anxious to facilitate the introduction of the bee literature of American to English readers, and have in the capacity of agents for the various publishers repeatedly undertaken to receive and transmit orders internationally with them, but irregularity (undoubtedly postal) in the delivery of the papers, has caused so much trouble, inconvenience, and mistrust, that a continuance of the practice has been found impossible. We have therefore proposed to the leading editors a plan which we think will work well, viz. that we should mutually interchange our papers in bulk, value for value, and distribute them to those who wish for them, from our respective offices, and thus minimise the risk of loss in postal transit, and create in each other a more lively interest in the dissemination of American and English information on bee-culture. Our proposal has, we are glad to say, been most cheerfully responded to by the editors of *The Bee-keepers' Magazine*, *Gleanings in Bee Culture*, *The Bee-keepers' Exchange*, and *The Bee-keepers' Guide*; and from and after May next these valuable papers will be delivered through the post direct from our office about the 16th of each month to those who favour us with orders for them. The editor of the *American Bee Journal*, however, declines to join our fraternal party, and hence it will be necessary for those who wish for that periodical to order it direct from America, and share with him the inconveniences arising from postal losses.

From our point of view, the arrangement we have proposed, and which has been so courteously and kindly accepted by the editors above, will give us a direct personal interest in the disposal of their publications, and the exchanges being in bulk, the chance of loss in transit will be of the smallest, while they, having the same incentive to dispose of our *B. B. J.*, will doubtless make every reasonable effort to do so, and thus the circulation of each will be increased with direct benefit to all, and without injury to one another. It will be evident to most minds that the cost of printing a few hundred extra Journals will be comparatively small, and seeing that by simply exchanging them for others they will practically become saleable, the fulfilment of the arrangement we have brought about will be equivalent in each case to an additional sale of home productions, stimulative to each producer, and beneficial to bee-keepers generally.

The Bee-keepers' Magazine and *Gleanings in Bee Culture* are sold in America for one dollar per annum each; we offer to send them out post free for four shillings and sixpence each. *The Bee-keepers' Exchange* sells for three quarters of a dollar; we will send it out at three shillings and sixpence; and *The Bee-keepers' Guide*, which sells for half a dollar, we will send out for two shillings and sixpence per annum: all monies to be paid in advance.—Ed. *B. B. J.*

READING LESSONS FOR CHILDREN.

At a late meeting of the British Bee-keepers' Association, the President, the Baroness Burdett-Coutts, observed 'that some new school-books were about being brought out by Messrs. Nelson of Edinburgh, and suggested that some steps should be taken to introduce a lesson or two on

apiculture;' and in allusion to the suggestion, an honourable and reverend correspondent mentions that in one of Messrs. Nelson's best books, the *Royal Reader*, children are taught that wax is made of bee-bread. Some time since we called attention to an absurdity in the *Child's Guide*, a school-book in which virgin honey is described as honey made by the young bees. Such errors as these stamp books as worse than valueless, and the sooner they are withdrawn from use the better it will be for the rising generation. One need scarcely wonder at the ignorance displayed by the multitude, when the writers and compilers of their instruction-books know so little of the subject they treat of.

END OF VOLUME VII.

We have now come to the end of our seventh volume, and having discontinued the use of Pink Wrappers, it is necessary to remind our readers that subscriptions for the ensuing volume are now due. There are still a few subscribers in arrear of payment for *Journals* had; and we earnestly beg of them, in honour, to render us our due, and relieve themselves from a chance suspicion of wilfully neglecting to do so.

We gratefully tender our best thanks to our numerous supporters, whether as correspondents, subscribers, readers, or advisers, we count them all as friends, and sincerely wish them prosperity and happiness.—Ed. *B. B. J.*

Volume VIII.—We shall be glad if any of our readers will make any suggestions that may occur to them as likely to improve our future issues. We can scarcely promise to fulfil all their requirements, but their wishes shall have our very earnest consideration. Mr. W. Carr, of Manchester, proposes that our pages should be reduced in size and increased in number; but seeing that so many periodicals dealing with specialities are of the same size, and many much larger, we question if the proposed alteration will be agreeable generally. Will our readers give expression to their views when forwarding the renewals of their subscriptions, which, for our encouragement, we trust they will do without delay? During the past year, in consequence of the lengthy reports of associations and shows, we have been compelled to add many additional pages to the body of our work, the heavy cost of which has been borne by ourselves; and in the fulfilment of our mission as promoters of shows for the advancement of bee-culture, we have often made no charge whatever for advertisements: we feel that, in the latter respect at least, rectification is, in justice to ourselves, absolutely necessary. Our present scale of charges for gen ral advertisements is very low, and will not bear reduction, except for continuous insertions; but for advertisements of associations and shows, we propose in future to make reductions of one half for the first, and two thirds for each subsequent insertion, that we may be recouped the actual cost of printing.—Ed. *B. B. J.*

BEE TENT ENGAGEMENTS.

BRITISH BEE-KEEPERS' ASSOCIATION.

June 30.—Farningham Rose Show.
July 1.—Tiverton Horticultural Show.
July 12-16.—Royal Agricultural Show at Carlisle.
July 21.—Southborough Flower Show.
July 27-August 2.—Kensington Show.
Aug. 11, 12.—Surrey County Show.
Aug. 18, 19.—Shropshire County Show.
Aug. 24.—Long Buckby Horticultural Show.
Sept. 3.—Devon and Exeter County Show.

HERTFORDSHIRE COUNTY ASSOCIATION.

July 7.—Herts Agricultural Show at Hatfield.
Aug. 5.—Frogmore Cottage Garden Show.
Aug. 27.—Much Hadham Cottage Garden Show.
Sept. 2.—Harpenden Horticultural Show.
Sept. 8, 9.—Hertfordshire County Bee-keepers' Show.

TOUR IN IRELAND.

Aug. 10.—Royal Agricultural Show in Clonmel.
Aug.—Maryborough County Agricultural Show. (Date not fixed.)
Sept. 3.—Newtownhards Flower Show. Near Belfast.
Sept.—Royal Horticultural Show at Dublin. First week in September.

BEE AND HONEY SHOWS FIXED FOR 1880.

July 1.—Tiverton. Devon and Exeter.
July 27, 28, 29, 30, 31, and August 2.—South Kensington. British Bee-keepers'.
July 27, 28, 29, and 30.—Caledonian Apiarian and Entomological Society's Show at Highland and Agricultural Society's Meeting, Kelso.
Aug. 5.—West Kent.
Aug. 11, 12.—Surrey County.
Aug. 18, 19.—Shropshire County.
Aug. 25.—East Scotland. Arbroath.
Sept. 2.—Exeter. Devon and Exeter.
Sept. 3.—Central Training College. Exeter.
Sept. 8, 9.—Herts County, at St. Albans.
Sept. 9. 10.—Herts County.

BRITISH BEE-KEEPERS' ASSOCIATION.

Members of this Association are requested to note that the next Quarterly Conversazione will take place on Wednesday, April 14th, at 6 p.m., in the Board Room of the National Chamber of Trade, 446 Strand, when a paper will be read by Mr. John Hunter on 'The future of British Bee-keeping in a commercial point of view, and how the Working Classes can be most successfully aided, and taught the Truths and Advantages of Modern Bee Culture.' The chair will be taken by Dr. Lionel S. Beale, M.D., F.R.S. An invitation has been received by the Secretary from Mr. W. Ingram of Belvoir Castle for the members of the Association to pay a visit to the gardens at that place

on Thursday, April 15th, for the purpose of viewing the large collection of early spring flowers suitable for bee pasturage. Members who may be desirous of accepting Mr. Ingram's invitation are requested to communicate with the Hon. Secretary, Rev. H. R. Peel, Abbot's Hill, Hemel Hempstead, on or before April 5th. An arrangement has been made with the Great Northern Railway Company that 1st Class Return Tickets to Grantham will be 19*s.* 10*d.*, and 2nd Class 14*s.* 9*d.* This arrangement presumes that there will be at least six first-class passengers, or ten second-class. Mr. R. R. Godfrey will arrange for conveyances to Belvoir Castle on the arrival of the party at Grantham.

The first meeting of the newly-elected Committee for 1880 was held in the Board Room of the Royal Society for the Prevention of Cruelty to Animals, 105 Jermyn Street, on Wednesday, March 10th. Present: Rev. E. Bartrum, F. Cheshire, J. P. Jackson, J. M. Hooker, J. Hunter, C. N. Abbott, W. O'B. Glennie (Treasurer), and Rev. H. R. Peel (Hon. Sec.) The minutes of the former meeting having been confirmed and signed, the Secretary read letters received from the Secretary of the Royal Society for the Prevention of Cruelty to Animals to the President of the Association, viz., 'That the British Bee-keepers' Association be permitted to continue their committee meetings at this office until the end of the present year, that their Library Books of Reference be permitted to remain at this office, and that the Committee of the British Bee-keepers' Association shall be at liberty to announce that their Committee meetings are held at this office with the permission of this Society, and that information respecting the British Bee-keepers' Association may be obtained at this office.'

It was moved by Mr. Abbott, and seconded by Mr. Jackson, that the Secretary be requested to acknowledge the receipt of the above letter, and to convey the best thanks of the Committee to the Secretary of the Royal Society for the Prevention of Cruelty to Animals for the liberal offer made to the Association. Subsequently Mr. Colam, the Secretary, had an audience with the Committee, and made the necessary arrangements for the deposit of the Library books, and gave other information requisite for the carrying out of the above resolution.

It was resolved that Mr. Jackson be empowered to solicit books for the library, and that an appeal be made to the members of the Association for donations for books at the time the notices of the next quarterly meeting were sent out.

A letter was also read from the Secretary of the Royal Agricultural Society stating that the Council of that Society could not agree to the suggestion of the Committee of the British Bee-keepers' Association, that they be allowed to make a charge for admission to the Bee Tent at the Carlisle Show; but, recognising the great interest attaching to the bee exhibition, and also the fact that a great expense would be incurred in sending the Tent to Carlisle, the Council would be willing to give a subscription towards the necessary expenses. It was resolved, 'That the Secretary be empowered to make the arrangements for sending the Tent to Carlisle as well as for manipulations and lectures on the understanding that a grant of not less than 20*l.* be obtained from the Royal Agricultural Society towards the expense thereby incurred.'

The Committee then proceeded to revise the Prize Schedule for the Annual Show to be held on July 27 and following days; but as time did not admit of this being completed, it was resolved that an adjourned meeting of the Committee should be held on Monday, March 22, for the completion of the business on the Agenda paper. The Balance-sheet for the month ending February 28 was read, showing a balance in hand of 47*l.* 5*s.* 4*d.*

The adjourned meeting of the Committee was held on the above date. Present, Messrs. T. W. Cowan (in the chair), F. Cheshire, J. Hunter, J. M. Hooker, J. P. Jackson, W. O'B. Glennie (Treasurer), and Rev. H. R. Peel (Hon. Sec.)

The Secretary announced that the Council of the Royal Agricultural Society were willing to give the donation required by the Association towards the expense of sending the Bee Tent to Carlisle. The Prize Schedule (as published in our present issue) having been made out, it was resolved that the same be published in the *Bee Journal* for the ensuing month.

BRITISH BEE-KEEPERS' ASSOCIATION.

The British Bee-keepers' Association offers its silver and bronze medal, together with a certificate of merit, to all county bee-keepers' associations affiliated with itself, as prizes at their annual county show for the best exhibits of honey in the comb; also the use of one of its bee tents, on condition that an authorized expert of the Association shall accompany the tent and superintend its erection and removal, giving displays of manipulations if required. The expert's expenses (10*s.* 6*d.* per day), with third-class railway fare, to be defrayed by the County Association, also the travelling expenses of the tent on both journeys. The Association is also prepared to send a bee tent and expert to the shows of agricultural, floral, and cottage garden societies, on condition that they shall be allowed to charge an admission fee, not exceeding sixpence, to each person entering the tent. At the close of each display the tent will be cleared of the spectators, and persons who may be desirous of witnessing a second exhibition will be required to pay an additional admission fee. At these shows a prize of a bar-frame hive (value 12*s.* 6*d.*) will be offered for competition to cottagers and other persons for the best and strongest straw skep of bees (not being a swarm of the current year). There must be not less than *three* competitors, and the bees must be handled at the discretion of the expert, who shall be the judge of which is the best and strongest stock. The winner will have his bees and combs transferred into the prize hive free of charge. The local society may divide any pecuniary deficiency with the British Bee-Keepers' Association, and receive half the profits (should there be any) after all the expenses connected with the exhibition have been paid, including the cost of the prize hive, carriage of tent, expenses of the expert, &c.; or, as an alternative, the Association will take all expenses upon itself and claim the whole of the proceeds. The local secretary is requested to make these conditions known as widely as possible in his neighbourhood, and to secure the competitors for the prize hive. The committee of the Association reserve to themselves the right of declining any application for the use of the tent, or of demanding a sufficient guarantee to cover the expense of sending it on long journeys.

CALEDONIAN APIARIAN AND ENTOMOLOGICAL SOCIETY.

Sixth Session.

Minutes of the Annual General Meeting of the members of this Society, held in M'Innes Hotel, 12 Hutcheson Street, Glasgow, on Wednesday, March 17th, 1880.—Present: Messrs. Baillie, Bennett, Cameron, Ellis, Hutchinson, Johnstone, Laughland, Morris, Muir, and Steele.—On the motion of Mr. Ellis, seconded by Mr. Cameron, Vice-President Laughland was called to the chair. The minutes of last meeting were read and duly approved of. The Hon. Sec. read letters of apology from President Howatson and Messrs. Munro of Kelso, Captain M'Laren of Greenock, and Wilkie of Gourock. On the motion of the Hon. Sec. it was agreed to send notice of meetings and other business to those only who had paid their subscriptions for the past session. It was also agreed to issue new members' tickets, which will be given to them on payment of their subscriptions for the

current session, and which will be the only available admission ticket to all the shows and meetings of the Society. He also read some correspondence between himself and Mr. Menzies, Secretary of the Highland and Agricultural Society of Scotland, regarding the arrangements for the annual exhibition, which takes place at Kelso on July 27, 28, 29, and 30. After considerable discussion regarding the affiliation of branch societies, the following motion was proposed by Mr. Ellis, seconded by the Chairman, and carried unanimously, 'That all branch societies from any district or place be admitted into the Caledonian Apiarian Society at the following terms:—20*s.* for the first twenty members, and 5*s.* for each additional twenty, or part thereof.' The plans and estimate of a new Bee Tent were laid on the table, and after full explanation by the Hon. Sec., it was agreed to accept the estimate of Mr. J. Huckle of King's Langley. It was proposed by Mr. J. D. Hutchinson, and seconded by Mr. Angus Cameron, 'That as this was going to involve a great amount of additional income and expenditure in the general funds, it would be much better to keep a separate account for the Bee Tent;' and it was also agreed to issue circulars soliciting special donations towards the defraying of its cost. The present rules of the Society were revised after considerable discussion by every member present, and the new copies were ordered to be printed and issued as soon as possible. The Prize Schedule for the forthcoming show was then examined, and after more than an hour's discussion the various classes were corrected and revised. The Hon. Sec. said, that as there was always some dissatisfaction regarding the award of the judges at the shows, he thought it would be better to appoint a committee to select gentlemen who would be well qualified for the position at the Kelso Show, and who would attend to both the interests of them and the exhibitors thereafter. Mr. J. D. Hutchinson proposed the following gentlemen for the Committee:—Mr. John Ellis, Bridge of Earn, Perthshire; Mr. John Munro of Kelso, Roxburghshire; and Mr. John Wilkie of Gourock, Renfrewshire. Mr. Steele said he had much pleasure in seconding this motion, and he was sure these gentlemen would do all in their power for the interest of every one concerned. A vote of thanks to the Chairman for presiding having been proposed by Mr. Muir, and seconded by Mr. Johnstone, the proceedings terminated, the meeting having lasted for more than three hours.

SURREY BEE-KEEPERS' ASSOCIATION, CROYDON DISTRICT.

On Feb. 23rd, Mr. J. Drage, of this town, gave a very successful lecture on 'Bee-keeping,' at Colonel W. Mosse Robinson's, Kenley, who most kindly threw his house open to all who cared to attend the lecture. Mr. Drage exhibited a model hive, also a model extractor, super, empty and filled, honey jars, &c. Mr. Drage also had some diagrams hanging on the walls. Questions were asked and answered by the lecturer. There must have been between thirty and forty cottagers present, who seemed to take in all that was said to them.

At the close of the lecture Mr. Robinson, in a most generous manner, offered to start a dozen cottagers with hives (such as Mr. Drage recommended) and bees.

Doubtless Mr. Lamare has told you that our County Show this year will be held at the Skating Ring, Croydon, on Wednesday and Thursday, August 11th and 12th. —EDMUND S. WHEALLER, *Local Hon. Sec.*

On Thursday, the 18th, a most successful lecture was given under the auspices of the above Association. Rev. H. R. Peel, who occupied the chair, briefly explained the objects of the Association, and introduced Mr. S. J. Baldwin as the lecturer. Mr. Baldwin then explained how to manage a common straw skep in the most profitable way. He then explained how to work bar-frame hives, and showed how much superior honey and larger harvests can be obtained from the bar-frame than the skep hive. He then alluded to the various superstitions about bees. At the conclusion of the lecture the audience were invited to ask questions, which several did. The meeting was brought to a close by a hearty vote of thanks (moved by Mr. Drage) to Rev. H. R. Peel for coming from Hertfordshire to preside.

HERTFORDSHIRE BEE-KEEPERS' ASSOCIATION. ANNUAL MEETING.

On Saturday, February 28th, the first annual meeting of the Hertfordshire Bee-keepers' Association was held at the Town Hall, St. Albans, the Right Hon. the Earl of Verulam, President of the Association, occupying the chair. There was a good attendance of members and friends, the fair sex forming the larger portion of those present. Among the company were Viscount Grimston, Rev. H. R. Peel (honorary secretary), Rev. E. Bartrum, Rev. Dr. Griffith, Rev. G. Finch (hon. treasurer), Rev. Dr. Gifford, Rev. Canon Kewley, Rev. A. Roberts, Rev. J. Hargrove, Rev. A. B. Libscombe, Mr. Littleboy, Mr. C. T. Part, Mr. G. N. Marten, Mr. Gibson, Mr. G. Debenham, Mr. H. C. Finch, &c.; together with the assistant secretary, Mr. J. Huckle.

Rev. H. R. Peel (hon. sec.) opened the proceedings by reading the following report for the year 1879:—

'This Association commenced its existence as the West Herts Association in the early part of the year 1878. The title of the Hertfordshire Association was adopted in accordance with the advice of the Bishop of the Diocese, in the month of October in the same year, when the Earl of Verulam, the lord lieutenant of the county, kindly accepted the office of President. The Association is a branch of, and is affiliated with, the British Bee-keepers' Association, and its objects are the same as those of the Central Society, viz., the encouragement, improvement, and advancement of bee-keeping as a means of bettering the condition of the agricultural labouring classes, and also the more humane treatment of that most industrious of all labourers the honey bee. The means adopted to carry out these objects are—(1) The holding of an annual county show, at which prizes are offered for the best specimens of honey, hives, and other articles connected with the more advanced methods of bee-keeping. (2) The holding of meetings, and the delivery of lectures on the nature and treatment of the honey-bee in various parts of the country, and the circulation of suitable books and journals amongst the members of the Association. For the circulation of the *British Bee Journal*, which is published monthly, the county is divided into twenty districts. Members residing in each district pass the *Journal* from one to the other. The last member on the list returns it to the secretary, and the *Journal* is preserved with the view to its being bound up in a volume at the close of the year, and forming the nucleus of a county library on bee-keeping. (3) The attendance of the Bee Tent at horticultural and cottage garden shows, in which practical illustrations of the process of driving bees, transferring combs, and extracting honey, are shown and explained by some well-known bee-master. (4) The establishment of depôts in all the large villages and towns for the sale of hives and other appliances for bee-keeping, as well as for the sale of honey produced by the members of the Association, and guaranteed by them to be pure and unadulterated. The work of the Association under its new title was commenced by a lecture, held in the infant school-room at Baldock, on Thursday, March 20th, the Rev. Canon Kewley taking the chair. An address on the aims and objects of the Association was given by the Rev. H. R. Peel, hon. sec. A plain and practical lecture on bee-keeping was also delivered by Mr. S. J. Baldwin, the expert of the British Bee-keepers' Association. Four meetings were

held in the larger towns at which Mr. Frank Cheshire, author of *Practical Bee-keeping*, gave addresses, viz. at Great Berkhampstead, on Saturday, March 22nd, under the presidency of the Marquis of Hamilton, on "The Bee—the friend of the cottager and gardener." At St. Albans on Saturday, March 29th, the Viscount Grimston in the chair, subject of address, "The Economy of the Bee-hive." At Rickmansworth, on April 18th, the Lord Ebury in the chair, subject of address, "The Principles involved in profitable Bee Culture;" and at Hertford, on Saturday, April 26th, under the presidency of the Hon. Baron Dimsdale, the subject being "The Relation of Bees to Flowers." Meetings were also held in the national schoolrooms of several villages under the presidency of the rectors or vicars of the respective parishes, viz. at Aldenham, Great Gaddesden, Dunstable, Redbourn, and King's Langley. At each of these meetings addresses were delivered by Mr. S. J. Baldwin, who also visited the apiaries of many members of the Association residing in the neighbourhood, and gave them much valuable advice and instruction as to the management and treatment of their bees. Addresses were also delivered at the several meetings on the advantages and objects of the Association by the Hon. Sec., who gave two lectures on bees and bee-keeping, viz. at the schoolroom, Croxley Green, on Monday, March 31st; and at the Public Library, Watford, before the members of the Watford Natural History Society, on Thursday, April 10th. The Bee Tent made its first appearance at the summer exhibition of the Hitchin Adult Sunday School Society, on Wednesday, July 9th. It was next erected at the show of the Watford Horticultural Society, on August 13th; it subsequently visited the cottage garden shows at Kimpton Hoo, Rickmansworth, Much Hadham, Hertford, Langleybury, Harpenden, and closed the season at the Frogmore Show on Thursday, September 18th. The annual County Show was held at Hemel Hempstead in connexion with the cottage garden and poultry shows, on Wednesday and Thursday, October 1st and 2nd, when prizes were offered for the best stocks of foreign and English bees, for the best and most complete hives, supers, honey extractors, and collections of bee furniture, also for the best exhibitions of honey in sections, the best single section, and for pure extracted honey. A driving competition was held on the first day of the show: the competitors being confined to residents of the county of Herts. The first prize in this competition was won by Mr. W. Childs of Leverstock Green, near Hemel Hempstead, who drove out his bees, captured and exhibited the queen in 7½ minutes. The second prize was won by Mr. J. Clapp of Abbot's Hill, Hemel Hempstead, who occupied 8 minutes; and the third prize by Mr. W. Dixon of Revel End, Redbourn. Seven other competitors also took part in this competition. On the second day of the show a driving and transferring competition (open to all England) took place, the first prize being won by Mr. John Walton of Weston, near Leamington, who drove out his bees from a straw-skep, captured and exhibited the queen, and transferred both bees and combs into a hive on the moveable comb principle in 10½ minutes. The Herts Association being affiliated to the Central or British Society, its members were entitled, according to the rules of the latter, to compete for the Silver Medal, Bronze Medal, and Certificate, which are offered at the annual county show of each affiliated association for the best exhibits of honey; the silver medal being awarded exclusively for the best specimens of honey in the comb. These honours were won by the following competitors, viz.:—The Silver Medal, by Mr. S. Thorne, Ashwell, near Baldock. The Bronze Medal, by Miss Gayton, Much Hadham, near Ware. The Certificate, by Mr. J. Clapp, Abbot's Hill, Hemel Hempstead. The prize hive offered for the best exhibit in sections or run honey, made by a *bonâ fide* cottager of the county of Herts, was not awarded, as no *bonâ fide* cottager exhibited in those classes. The Committee recommend that this prize be offered in the future for the best exhibit of honey in the comb, in any form, made by a cottager being a member of the Hertfordshire Bee-keepers' Association. The Committee regret to state that there were not sufficient funds in the hands of the treasurer last year to warrant the purchase of a Bee Tent. The one used during the season was purchased at its close by the British Bee-keepers' Association. The Committee, however, recommend that a Bee Tent be ordered for the coming season, the price not to exceed 20*l.*, and that a special subscription be commenced to defray the purchase. It is gratifying to be able to state that there are no arrears of subscriptions, every member having paid his subscription before the close of 1879. The Committee regret to announce that two members—the Earl of Essex and Mr. R. Robbins—have withdrawn their names from the Association. With such an unfavourable season for bee-keeping as that of 1879, many have no doubt been disappointed in the results obtained, and have been discouraged in their first attempts; but the Committee feel confident that those members who are determined to persevere in their new pursuit will achieve greater success as they gain greater experience, and that every painstaking and persevering cottager may, if we are favoured with a more genial summer than the last, make no inconsiderable addition to his income from the profits derived from his bees. The present members of the Hertfordshire Association are requested to make its existence and objects known as widely as possible, especially amongst the clergy and others who may be expected to take special interest in the welfare of the rural population.'

The Hon. Secretary also read a letter from Mr. Baldwin, expert to the British Bee-keepers' Association, supplementary to the report.

The statement of receipts and expenditure for the past year was stated to be as follows:—

RECEIPTS.	£	s.	d.
Balance brought forward	0	6	2
By Members' Subscriptions	67	18	0
,, Receipts from Bee Tent at Village and other Shows	22	19	1
,, Admissions to County Show	15	9	6
,, Sales at County Shows, received	12	10	10
,, Exhibitors' Entry Fees at County Show ...	4	10	0
,, Sale of Pamphlets	3	6	10
,, Receipts at Lectures	0	5	0
Sale of Catalogues	0	3	4
Donation to Prize Fund—J. P. Jackson, Esq. ...	0	10	0
Stock in hand	2	10	0
	£130	8	9

EXPENDITURE.	£	s.	d.
Expenses of Lectures and Meetings	19	5	11½
,, ,, Bee Tent at Village and other Shows	22	5	6½
Prizes awarded at ditto	5	12	6
General Expenses of County Show	30	17	10
Printing Account	15	14	6
Sales Paid—County Show	11	19	2
Messrs. Abbott Bros.—Bee Journals and Leaflets	5	5	0
Cottage Hives for Exhibition	1	18	6
Affiliation Fee to Central Society	1	1	0
Postage, Stationery, and sundry small Bills ...	11	1	11½
To Balance—Cash in hand 2 16 9½			
,, ,, Stock, Hives, &c. ...2 10 0			
	5	6	9½
	£130	8	9

The Earl of Verulam proposed that the above report and balance-sheet be received and adopted, which was seconded by the Rev. Canon Kewley.

Viscount Grimston proposed that a vote of thanks be tendered to the retiring officers, which was seconded by Mr. G. N. Marten.

Mr. J. E. Littleboy (Hunton Bridge), had a great pleasure in proposing the election of a number of noblemen and gentlemen (whose names he read) as Vice-presidents for the ensuing year. He also had great pleasure in proposing that the Earl of Verulam be requested to act as President again. He also proposed the election of the Rev. G. Finch as Hon. Treasurer, in the place of Mr. Wooton, who had resigned. Last, but not least, he had to propose the re-election of the Rev. H. R. Peel as Secretary. Every one connected with the Society knew that Mr. Peel was its life-blood, and he (Mr. Littleboy) on behalf of the meeting thanked him.

Mr. C. T. Part seconded the motion for the election of the officers, and the same was carried unanimously.

Rev. H. R. Peel said he was very much obliged for the kind reception given to his name. He had one little thing to ask with regard to his office. The office of Secretary involved considerable labour, and made a very large demand on one's time, and he had been obliged to avail himself of the assistance of Mr. Huckle, the Assistant Secretary, very much. He thought it would be a very excellent thing for this Society to secure the services of Mr. Huckle as Assistant Secretary, and a small sum of money might very well be given him as a salary, so that they might be assured of his services at all times. He could assure them the amount of work he did was very great indeed, and he was quite sure his services would barely be remunerated by paying him a small salary of 10*l.* per year and his travelling expenses. He should therefore propose that the Association retain the services of Mr. Huckle as Assistant Secretary, at a salary of 10*l.* per year, with a proper allowance for travelling expenses.

Rev. G. Finch seconded this, and said he could assure the meeting that Mr. Peel had not overstated what Mr. Huckle had done.

The motion was put to the meeting and carried.

Mr. Huckle thanked the meeting, and said he should endeavour to do his best and give satisfaction.

Rev. H. R. Peel then read a list of names of gentlemen from the eastern and western divisions of the county, who it was proposed should act on the Committee for the ensuing year. These were:—West Herts: Rev. E. Bartrum, Mr. G. N. Marten, Rev. H. W. Hodgson, Mr. H. T. Hodgson, Mr. H. Bower, and Mr. C. T. Part; East Herts: Viscount Grimston, Rev. Canon Kewley, Rev. F. G. C. Jenyns, Colonel Smyth, Mr. G. M. Campbell, and Rev. Dr. Gifford.

The above was adopted by the meeting, it being understood that the Committee had power to add to their number.

Rev. H. R. Peel then stated that the dates for the County Show had been fixed for Wednesday and Thursday, 8th and 9th of September, at St. Albans, as being one of the most central points in the county, and one most easy of access. If it could be arranged to hold a flower show at the same time it might induce many people to attend who might not come to see a show of hives and honey by itself.

The regulations for the attendance of the Bee Tent at Horticultural Cottage Garden Shows were then decided upon, and a circular in accordance therewith was ordered to be prepared for the guidance of secretaries of such shows.

As regards the County Show to be held at St. Albans, Mr. G. N. Marten stated that, thanks to the liberality and kindness of Mr. Gibson of St. Albans, who had offered the loan of his fields, they had secured the most eligible site in St. Albans.

A vote of thanks to Mr. Gibson was accorded for his kindness.

Rev. H. R. Peel, referring to the Bee Tent, said the Association had not been able to pay for it, and he suggested that a special fund should be raised for this purpose, without drawing on the treasurer for the amount.

Twenty volumes of the *Bee Journal*, bound up, were ordered to be deposited at various points throughout the county, for the convenience of the members of the Association, and it was hoped they would form the nucleus of a Bee Library.

A ballot for four prizes, in which all the members of the Association were allowed to participate, was then proceeded with, the Hon. Viscount Grimston calling out the numbers while the Rev. H. W. Hodgson drew the prizes. Singularly enough, the reverend gentleman drew the first prize amid some merriment. The second prize fell to Mr. Timberlake of King's Langley, and the third to Mrs. Woolrych of Croxley Green. Owing to some error the ticket for the fourth prize could not be found in the bag, and it was held over until next year. The four prizes were different descriptions of hives.

On the motion of the Rev. H. R. Peel, seconded by Mr. Turnbull, a vote of thanks was accorded to the noble Chairman for presiding, which the latter acknowledged.

A sale of goods furnished to the depôts during the year 1879 and not sold, terminated the proceedings.

WEST KENT BEE-KEEPERS' ASSOCIATION.

A public meeting was held in the Public Hall, at Bexley Heath, on the 3rd March, when a lecture was delivered by Mr. F. Cheshire of Acton. The chairman, Dr. Spurrell, in introducing the lecturer, explained that the meeting was called to assist in the formation of a branch of the West Kent Bee-Keepers' Association, and he hoped it would be shown that Bexley Heath was alive to the importance of the subject. Mr. Cheshire having delivered his lecture, a resolution to the effect that the cultivation of the bee was deserving the attention of all classes, and a vote of thanks to the lecturer, were carried unanimously. The branch of the West Kent Bee-Keepers' Association now established at Bexley Heath will include in the area of its labours the following districts:—Abbey Wood, Bexley, Bexley Heath, Belvedere, Crayford, Erith, and Welling, with head-quarters at Bexley Heath. Mr. W. F. Ranger, of Bexley Heath, was appointed local Hon. Sec., and will be happy to give information to all inquirers.

Lecture.—Mr. Raitt, of Blairgowrie, Secretary to the East of Scotland Bee-keepers' Society, delivered a lecture in the public school at Marykirk, on Monday evening last, to a highly attentive and appreciative audience, on 'Bees and Bee-keeping.' On the motion of the Rev. J. C. M'Clure, Dr. Simpson was called to the chair. With the aid of beautiful diagrams the lecturer described the natural history and instincts of bees, their ingenuity and architecture, their emotions under fear and anger, and the superiority and profitableness of the bar-frame hive to the old straw-skep; describing the management of a bar-frame hive from early spring to the close of the season; showing how in an average and good year a harvest of from 50 to 100 lbs. of comb-honey could be procured from a single hive, leaving an abundant supply for the winter months. By bee-keepers and non-bee-keepers alike, the lecture was greatly appreciated. On the motion of Dr. Simpson, a hearty vote of thanks was awarded Mr. Raitt for his most instructive and valuable lecture.—*Montrose Review*, Feb. 20.

Wisbech.—At a meeting of the Wisbech Natural History Society, Rev. A. Bothamley, of that town, read a paper on 'The Honey-bee, its Habits and Management.' The paper was listened to with great interest, and at the close a unanimous vote of thanks was passed. Mr. Godfrey, of Grantham, lent his valuable diagrams, at which the class were highly delighted. Hopes are entertained that a Wisbech Bee Society will be formed, Mr. Bothamley having got several promises of support from bee-keepers in that neighbourhood.

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

THE HUMBLE BEE.

Having been the innocent cause of 'the peat being put to the heath' on this question, through a lady correspondent, who had kindly promised last autumn to aid me by joining in the hunt to obtain a few Humble Queens, and through the extremely wet summer finding their scarcity, not unnaturally applied as 'Cheltenham and Rothesay,' to our Editor in the November number for advice, which drew forth the very interesting communications of Messrs. W. Crisp, H. Jenner-Fust, jun., and D. Ramsay.

Towards the close of 1868 a London friend, desirous of introducing the humble bee into New Zealand for the fertilisation of the red clover, with the consequent saving of a very considerable annual outlay for the purchase of imported seed, which with that bee once climatised could readily and successfully be grown in the colony, appealed to me for assistance, while at the same time perfectly cognisant of previous effort and cause of failure, which I had much pleasure in affording. The hot preceding summer was unusually favourable for the increase of the species, but as winter frost had set in, fertilised queens were by this time snugly ensconced in their winter quarters ere the search commenced, which proved one of very considerable difficulty; although well knowing that they hybernate, and are frequently accidentally come upon in moss at roots of trees, thatch on the roofs of houses, turf dykes, compost heaps, and haystacks; but to spot the particular location becomes a matter more of good luck than good guiding. The number of tons of hay which may be turned over without coming on a solitary bee is only known to those who have tried. Indeed, the search too frequently becomes not unlike looking for the proverbial needle in the same place. Mentioning the matter to bee-keeping friends last summer, previously overlooked, I was assured that had I but applied to them they could have supplied me with any number through last winter. On remembering them of their promise, I was not a little surprised to find not a single queen was forthcoming.

My most successful searcher was a nursery foreman interested in the habits of bees, and he, in the most indefatigable manner, carefully turned and picked through the whole frozen compost heaps on the ground, resulting in the finding of one queen. To secure another, and thus be able to send me a couple, he roused all his energies, and he cheerfully gave up his New Year's holiday (1879), and prospected in the woods all day many miles from home; and while about to give up in despair, an orifice, at the root of an old beech, attracted his attention, and he succeeded in unearthing number two. The couple were packed in dry moss and posted to London, where a suitable box was prepared in two divisions. Besides their moss dormitory a wire cloth, giving space for each, was provided, together with a supply of sealed honey-comb, that, despite the refrigerating precautions, they might get aroused as the steamer passed into southern latitudes. The two queens, with the arrangement for their voyage, were submitted to the late Mr. Frederick Smith, at the British Museum. He named the species *Bombus lucorum*, a hardy, good sort for the purpose; he thought the provision made for their comfort complete, and he could see nothing to prevent the success of the experiment. They sailed from Southampton on 9th January, 1879, under charge of a gentleman going out, and from some unexplained cause their fate remains still a mystery.

It would be a matter of much interest to all apiarians were some readers of the *British Bee Journal*, personally acquainted with the distinguished entomologist—the late Mr. Smith, to write a short biographical notice of that gentleman. The readiness and kindliness with which he gave his invaluable opinion on the various races of bees, the late Mr. Woodbury, and many others, have borne testimony.

The late Lieut.-Colonel Newman, of Cheltenham, made the study of the Bombus race a specialty, and years ago contributed many interesting papers as to their habits in the pages of the then *Cottage Gardener*, now *Journal of Horticulture*.

That bee has always had a charm for the present writer. As a child my favourite toys were the yellow-stained, gaudily flowered little dog-house-like boxes, into which my captives were placed; and through the oval aperture, closed by a sliding door, many were the teaspoonfuls of sugar shovelled in in the firm belief that the scraping sounds of the prisoners were the honey-making process going on; and when taken out to be harnessed to little paper carts, the screams of delight as they sprawled across the polished mahogany are pleasant memories of childhood's days.

As a boy, to lie on the grass underneath the shade of a lime-tree avenue, and listen to the hum of the busy rifflers of the blossoms after a hard day's work, hunting up their nests through the woods, was my greatest delight. My first lesson of the depriving system were acquired amongst the Foggies (*Bombus muscorum*). So soon as the lea harvest commenced, I was on the alert. Shaking out to dry, the cut grasses temporarily blockaded the entrances to the nests, revealed by the buzzing. On poised wing they were speedily noted and marked off, till the agenda became very full. The *modus operandi* was as follows:—Stretched on the ground, the moss top of the nest was carefully removed, and combs laid bare; then with a straw cell after cell was sucked, and the moss then replaced. Suppose No. 1 was so deprived on the Monday; No. 2 was similarly treated on Tuesday; and so on till the list became exhausted, when No. 1

was again ripe for deprivation. I remember perfectly of digging out from a dry drain a very strong nest of unusually large humble bees; from the extent of large celled combs, and the quantity of rich thickened honey it yielded, I was then of opinion, as I still think, it must have been the accumulations of more than a single season. Being the enemies of my favourites, war was mercilessly declared against all wasps and hornets, their nests brimstoned, dug, and burned, after the queen of each had been impaled on a large brass pin; and those trophies were reckoned over with as much pride as the Indian his scalps.

Yet the hum of the first humble queen, as she wings her way through the balmy atmosphere she brings, is, equally with the first notes of the cuckoo, a most delightful harbinger of summer.—A Renfrewshire Bee-keeper.

FLORAL GOLD.

Accepting the Editor's offer of a sample of James Bruce's 'Floral gold,' I offered to make an analysis of it, and if found genuine to carry out the published process. I may say I had not the least faith in the golden theory; but merely undertook the work at the solicitation of one of your respected subscribers, who thought there might be something in it. The sample furnished me, to the unassisted eye, was simply some gritty black dust with no appearance of anything metallic about it. Under the microscope it was resolved into small lumps of charcoal and sand, still nothing having the semblance of gold; and a chemical analysis gave only carbon and silica, with a trace of sodium and potassium, as is usual in vegetable substance. I unhesitatingly say that the sample furnished to me did not contain any gold whatever—the one hundredth part of a grain could not have escaped detection. Assuming that I had a fair sample,* it follows that James Bruce's statement in the *Journal* of March 1, is utterly unworthy of credit.—John Hunter, *Argyle Road, Ealing.*

EARLY DRONES.

My bees have all wintered well, and have not consumed all the food I gave them last autumn. The hives are quite full of young bees, and they are all very busy taking in pollen. There is one hive which has rather puzzled me. On February 23rd, and on the following ten days, they brought out several dead drone grubs and a few dead drones. This made me think at first that the queen must have died during the winter, and that they had raised a drone-laying one; but the workers seem to be increasing every day, and they are quite as strong as any hive I have. To-day (March 11th) the drones are flying in and out of the hive quite strong. Is this not unusually early for them to do so? I am unable to examine the hive as it has fixed combs, but I know the queen must be old, as I bought the hive in July, 1877. I have never had a swarm from it. I believe that the queen must have had her wings cut by the person that supplied me with the hive and bees. I am sorry to say that our cottagers have lost nearly all their bees. I was talking to a man yesterday that has kept bees for over forty years, and he says he cannot remember such a bad year. He has only saved two hives out of about a dozen.—Capt. C. A., *Hurstbourn Tarrant, March* 11, 1880.

[The presence of drones so early in March is a circumstance we should regard with grave suspicion, but for the assurance that the workers are increasing also. Clipping the wings of a queen will not prevent the swarming impulse in bees, and the most that can be said for the practice is that it prevents a swarm leaving the apiary while the mutilated queen remains at the head of the stock. Such a queen is very liable to be lost when a hive attempts to swarm through falling to the ground and remaining undiscovered, whilst the bees return to the hive, and a new one appears in the ordinary course.—Ed.]

EARLY DRONES.

It may interest you to know that on Friday, the 5th March, at about a quarter to two, I saw the first drone of the season coming out of the hive I procured from you last year. A strong but warm S. W. wind was blowing at the time. I saw also, I am sorry to say, three white bees lying on the ground with a blue-bottle sucking at one of them. To-day drones and workers are out in force, the latter bringing in a considerable quantity of crocus pollen.—J. F. R., *Cheshire.*

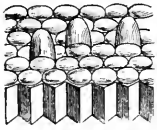
[Immediately on receipt of the above we sent a suggestion that the appearance of drones at so early a date gave rise to suspicion that the queen had died, and had been succeeded by a fertile worker, which had given birth to the drones. On the 13th, however, we received the following:—]

I have to thank you for your card. As soon as I saw the first drone I made up my mind to examine the hive, but the time of clergymen is not always at their own disposal, so I have been obliged to let several days go by. To-day, however, I took advantage of the sunshine to open the hive, and found the queen—a Ligurian—all right; a considerable quantity of honey, about 10lbs., as nearly as I could judge; two or three drone-cells (covered), and two patches (each about five inches in diameter) of grubs; I could not tell whether drones or workers, except that they were in worker cells, and so I presume are what we want. I cut away a quantity of empty drone-comb, and altered the position of the frames so as to bring the honey nearer to the queen and her offspring. The population of the hive is quite as large as can be expected. I have been trying pea-flour in the crocuses, of which I have thousands. The bees have not yet taken to it among the shavings. I have been feeding with barley-sugar. It is possible that the queen was a virgin, but if so, I think she would have bred her drones last autumn. I shall watch the hatching out with interest, and hope the future of the hive

* We sent Mr. Hunter the whole of the sample received from Mr. Bruce; from the first we had no faith in the idea, as may be inferred from the note appended to the original announcement, but on the principle that the *Journal* is open, we give every one a fair hearing. Our readers will please note Mr. Hunter's change of address.—Ed.

may make it worth while for you to read another note from me.—J. F. R.

[It may be helpful to many of our readers if we make it clearly understood that unfertilised eggs in worker cells, whether deposited by a queen or a fertile worker, always develope into drones, to give room for which the bees elongate the cells in which they are deposited, and when sealed they stand high above the surrounding worker cells, as shown in the wood-cut. Drones bred in worker-cells are considered useless for fertilising purposes.—Ed.]



COTTAGERS' BEES.

In your editorial notices in the March *Journal* you say the cry from all quarters is, 'That the Cottagers' Bees are all dead.' I am sorry to say it is so in many cases; but I am thankful to say it is not the case with me, having eight hives in the autumn—five in bar-frame hives, and the others in skeps, am glad to say, through successful feeding they are all alive, healthy, and strong, having given them over a hundredweight of sugar-syrup according to your directions in *Journal*. Hoping it will be a good season this year. Although I did not get anything out of them last year, I did not lose by them, having sold swarms to make up for the outlay in feeding.—J. L., *Wirksworth, March* 8, 1880.

BEES IN SCOTLAND.

I have, during the past fortnight, delivered public lectures in five different centres in the North-east of Scotland, viz., Marykirk and Banchory in Kincardineshire; Mintlaw and Huntly in Aberdeenshire; and Arbroath in Forfarshire. Only in places where the influence of Bee Journals and Societies have penetrated do I find anything like numbers of promising stocks. Generally, the numbers have been lamentably reduced by starvation and foul brood, the latter pest being very prevalent in Aberdeenshire. I have seen the famed apiaries that have boasted of occasional grand results under the system of large skeps, but from all I can judge their days are numbered. Foul brood is too much for them. I had great pleasure in applying the dividing knife to several venerable specimens, and all the prominent bee-keepers have already begun to wear them out of use. Everywhere these lectures were highly appreciated.—William Raitt, *Feb.* 28, 1880.

EXPERIENCE WITH HIVES—THICK *v.* THIN WALLS.

As I think actual experiences are always useful, when carefully conducted, I will send you mine for last winter. To begin with, I may say that it is certain that last winter has been severer than anything since 1829 certainly, and probably since 1749—as far as this part of Europe is concerned. The Lake of Constance, the Rhine, and the Loire at Nantes, have all been frozen. The two first have not occurred since 1829, and the last since 1749. The frost here lasted from the 15th November to 17th February, with only eight days' exception. The minimum temperature (average) for December was 9 degrees, Fahrenheit; the maximum only 22 degrees, or 10 below freezing; and the lowest temperature on the 8th December was 22 degrees below zero, Fahrenheit.

I had nine hives of my own, and two belonging to the farmer where I kept my bees, to look after. Four of these were frame-hives of yours, the other seven straw hives, on the Oettl principle, advocated by M. Collin. The frame-hives are one Cottage, one large Standard, one improved Cottage with cover, and one Woodbury. The two last I had transferred in August last, trusting to a large field of sainfoin close at hand to enable the bees to pick up what they wanted for the winter. I was absent all the autumn, and when I returned in October I found that these two hives had dwindled very much in numbers, owing to the sainfoin having utterly failed as a honey crop. I did what I could with barley-sugar; but though breeding recommenced, it was too late, and the severe cold was too much for the weakened populations, though they had sufficient food, and both these hives succumbed, though in the case of the Cottager this was perhaps entirely owing to a mouse having somehow got inside the cover, and eaten up all the quilt.

To my great delight the other two hives are now both in excellent order. It would not be possible to desire anything better. When I cleaned out the little Cottage hive yesterday, it really had not above a hundred dead bees in the bottom, and hardly any dirt. The bottom of this hive is not moveable. The hive stood completely in the open, without protection, but was covered with a thick bit of old carpet, and the lid of a box over all to keep the carpet dry. I also thickened the usual quilt by a fold of old carpet, in which I made a small hole corresponding with the feed-hole, in the quilt, as a ventilator, which was partly closed by a perforated feeder. The combs had winter passages, but the ends of the frames were not stopped. The interior of the hive was perfectly dry and sweet, and the bees looking clean, healthy, and vigorous. Considering that the walls of the hive are so thin (it is your common 4*s.* 6*d.* hive), this is really wonderful.

The Standard is strong and in good order also, but lost more bees, as I cleared out a great number of dead ones after the first severe cold in December. There is not much young brood at present; but as the population is very numerous, breeding must have gone on all the winter, to a certain extent. This hive is still well supplied with food, but I took none from it in the autumn. The Cottager, however, has very nearly come to the end of his stores. It had given me eleven or twelve pounds of run honey in the autumn, but I thought to have left sufficient, *i.e.* from 15 to 20lbs. This has now nearly gone.

Of the seven straw hives, one is dead, three are in bad order, and four in good order: all these hives were in a covered apiary. The best, perhaps, of these hives, was one which was not covered at all with a straw lid, and only had a piece of old sack-

ing laid over the top. But except this one, all showed signs of moisture on the walls, and were by no means so sweet and clean as the wooden hives with quilts. In some cases the combs were a good deal mildewed; but in all cases the hives with strong populations were in good order, and were not suffering much from moisture. The hives with old combs were the worst. I have the exact weight of these hives on the 21st of October and the 4th of March, showing the exact consumption of provisions in the four and a half months, which may be interesting :—

	21 Oct.	4 Mar.	
	lb.	lb.	
1 ...	70 ...	58	1st class large hive.
2 ...	50 ...	40	Swarm of last year, but no honey taken.
3 ...	37 ...	30	" "
4 ...	43 ...	34	Old hive, poor.
5 ...	43 ...	32	Ditto, and lost a great number by death.
6 ...	42 ...	31	Very good hive; about two years old.
7 ...	32 ...	—	Old hive. Dead.

The first five of these hives have the walls two inches thick, on the Bohemian plan, to keep out the cold.

The deduction I make from the above is, that having strong populations and sufficient provisions, upward ventilation is even more important than thick walls. Nothing can possibly be warmer than the thick two-inch straw walls of my Oettl hives. How can the half-inch boards of my little Cottager compare with these? The next deduction I make is, that reduced space is most desirable: let it be effected by stopping the frames, or by reducing the space inside the hive. As I have before stated, I believe only in the latter plan, but mean to try both fairly another winter, if all goes well. The facilities which your Combination Hive affords for reducing and enlarging the interior space, seems to me one of its greatest advantages.—G. F. Pearson, *Nancy, March 6th.*

DRY SUGAR FOR BEES.

I notice in your March issue you say bees will not use dry sugar. I am not going to say you are wrong, but I would say that a person half a mile from here feeds on nothing else but dry sugar. The woman I refer to brings it out of her house in the paper and pours it out on to the flight-board. The bees eagerly attack it, but I cannot positively say by what means they carry it off. Some look as if they wetted it themselves, and others carry small pieces into the hives. I think they reduce it themselves to a liquid.*—Parent Stock.

BEES IN CHESHIRE.—LIGURIANISING.

I regret to have to say that in the West Cheshire district nearly all stocks belonging to cottagers are dead. I urged them to feed, but, with one or two exceptions, they preferred their old method. Those who took my advice can now boast of saving a few. I have eight stocks, and my neighbour has ten. These have been wintered without the cloth covering, and are now carrying in both wheat-flour and pea-flour.

* In that case it is not dry sugar.—Ed.

I wish to infuse new blood into them, and shall be deeply obliged if you will answer the following in your next issue. 1st. Can I give a Ligurian queen to an issuing swarm, taking away the queen that left the stock with them? 2nd. Can I turn a Ligurian queen into the stock-hive from which the swarm issued immediately after the swarm has gone?—Parent Stock.

[1. Catch the black queen and cage her in the swarm to which she belongs, and in the evening, when the bees are quiet, remove the cage and black queen and substitute the Ligurian (uncaged), and leave her for twenty-four hours, feeding with scented syrup in bottle immediately above her. 2. When a first swarm has departed from a hive, a queen may be introduced in a cage, and after forty-eight hours liberated with a comparative certainty of being well received, and will probably be allowed to destroy all queen-cells, and thus prevent further swarming. —Ed.]

WINTERING.

It will be instructive to note the manner of wintering in different localities. In the northern counties I believe that those bees fed in time last autumn will come out well if fed for a month or two on candy. I noticed a day or two ago a dead drone on the floor of a hive of hybrids. This raised my curiosity, and I examined the frames for the queen. I found her looking all right, and well she might, for one or two combs had worker brood sealed and formed, and some drone brood, I think. Is not this very early (Feb. 24)? Another hive has brood too, but not quite so forward.

I find the simplest way of using candy is to have it poured out hot on common paper on a stone floor. If the edges of paper are turned up it will hold the boiling candy all right, ¼ or ½ inch thick. When cooling I mark it with a knife to be able to break it in pieces the size required, and then cover it with tissue paper. When using I turn the candy tissue side down, and lay on the top of frames and under quilts, slip it between or otherwise. It keeps all perfectly clean, and is very easily done.—F. P., *Westmoreland, Feb.* 24, 1880.

ARTIFICIAL POLLEN.—THE JOURNAL.

On Saturday I put a straw skep half filled with thin shavings which I had previously sprinkled with pea-flour. Three of my hives have taken to it, and are working like slaves, going into their hives as white as millers. I suppose I am not doing wrong in causing them to work in this way? A suggestion of yours in the *Bee Journal* I have also found work admirable, viz. filling the combs with syrup, and sealing them with liquid wax.

I think I may say that one of my hives owes its life to this. It seems so natural, and so little disturbing. I fill my combs over a dish with an ordinary bottle of thick syrup. Then let all the superfluous syrup drip off before replacing the comb in the hive.

I am learning so much under your instructive Bee-paper, that I feel that soon I shall be in a position to lecture on bees at the social gatherings about here. I admire very much the public spirit

which you exhibit in your endeavour to educate us in such an important branch of horticultural industry. Few think nowadays of trying to fill any other pockets but their own. How anyone can use hives that do not open at the top is indeed a wonder.—H. C. S., *Henley-on-Thames, March* 1, 1880.

PROTECTIVE PORCHES.

In Mr. F. Parker's 'Movcable Porch,' as shown in *B. B. J.* of February, would not the wet run down the face of the hive through the open joint of porch roof to the doorway (however tightly screwed)? I find a strip of thin board, some 3 in. wide, with two ends nailed on, cut so as to slide under the porch board, as shown in cut, No. 1, effectual. It can be made by anyone, to fit *any hive already occupied;* can be put in and removed in a moment; cannot blow down, and it affords complete protection. For *skeps*, I cut (out of old meat tins) shades in the shape, No. 2. Bend the three points at right angles, and stick them into the hive.—Country Parson.

No. 1.

No. 2.

BEES IN WILTSHIRE.

You may like to know the present condition of the bees in this neighbourhood, on Wilts Downs, 800 ft. above the sea:—

In September there were sixty-five stocks in the village, of which only nine survive, of these eight belong to me.

Cottager No. 1 had twenty-two, lost three in September, would not feed the rest, 'he never meddles with his'n, he don't.' I offered him 4*d.* per lb. for all his light ones. 'No, he would chance it, it is unlucky to sell bees;' of course, all are dead.

No. 2 had thirteen, acted in the same way, result the same as above.

No. 3 had sixteen, burnt four, and got 1 lb. of honey only, sold me four, weighing together 17 lbs. These I divided between two of my own stocks to their mutual advantage. He determined to feed the rest, and, I believe, has saved one.

No. 4 had only three, and has lost all, two in September, and the other was kept alive on moist sugar until ten days ago.

N. B.—All the above were in old-fashioned skeps.

Now, for my own eleven. I carefully examined them all, December 22, and again on February 5th; on this latter occasion taking out every frame, the bees being very busy.

Including swarms, I had (first week in September) nineteen hives, which I reduced, by uniting, to eleven, all of which I fed liberally, some of them before that time. Those consisted of—

No. 1, in 'Cheshire' hive, stocked with three late swarms, and comb transferred from skeps (bought at 4*d.* per lb.), September 17, 1878. These did not swarm or make any surplus honey, but have been strong and healthy all along.

No. 2.—The same as No. 1 in all respects, September 27th, 1878.

No. 3.—'Woodbury,' stocked in the same way with two late swarms, transferred with comb September 6th, 1878. These, though fed as the others, did little work, and were with difficulty kept alive, and much troubled with wax-moth. This, by constant care, I got rid of, and on 20th of October, 1879, I added two small lots of condemned bees, from which time they have prospered wonderfully.

No. 4, old stock in flat skep, threw out three good swarms, and then all but died; but with careful feeding weighed 30 lbs. net in October, and are good now.

No. 5, 'Combination Hive,' stocked with my first swarm, June 18th, eight frames given at first, these were soon nearly filled. September 11, added a transferred swarm, and three combs partly filled; these have done well all along.

No. 6, 'Combination.' The same nearly as No. 5, doing well.

No. 7, 'Combination' swarm of June 24th, ten frames given to start with, all nearly filled by July 5, no comb made after that; added transferred swarm, and one comb of brood, September 5. Has done well all along.

No. 8, 'Combination.'—Double swarm of June 25, ten frames given, worked well for a week, then began to dwindle away. Examined August 7th, no queen. Transferred a swarm from a skep, and added to them with fine queen, and three more comb, looked well on December 22; bringing out dead January 31; all dead February 5th, leaving about 8 lbs. of store; and slight signs of dysentery.

No. 9, 'Makeshift' with 'Haystack' outer case (space filled with shavings), stocked with good swarm, June 18th, filled every frame in three weeks; these looked well, and had about three frames full of honey, December 22nd; busy bringing out dead, January 30th; all dead, and not a drop of honey left, February 5th. These, too, showed signs of dysentery.

No. 10, 'Combination.' Stocked September 5th with two lots of transferred bees, and ten combs. Worked well at fixing and filling those, and are as good as any I have.

No. 11.—The remains of a wretched stock received from a friend in January, 1879, in straw 'Sherrington' Hive (large enough for three ordinary swarms in most years), frames not half filled, when I had them, so I took out four empty frames, put in a 'dummy,' and filled vacancy with bag of chaff, fed liberally all the year; in September added a strong transferred swarm with good queen (having removed the old one); half dead December 22nd; all gone by February 5th, leaving 5 lbs. or 6 lbs. of honey, and signs of dysentery, as in Nos. 8 and 9.

Thus I have lost three, and have eight left, and having examined every frame on February 5, I have reason to be well satisfied with their present condition.

I made all my frame-hives 'double-cased,' with

shifting floor-boards, good roof, well painted and watertight, frames of 'Woodbury' size, but your pattern, all provided with quilts. My old stocks were liberally fed with syrup and pea-flour last spring, all swarms for the first week, and whenever there was a spell of bad weather, and all hives in proportion, to what seemed necessary, from September 1st till the end of October. I am now feeding again with sugar-candy and salicylic acid as a precaution against dysentery leading to foul brood hereafter. Our cottage neighbours, of course, wondered scornfully at summer and autumn feeding, 'they never meddle with theirs' (except to burn them); now they have their reward, and I hope I may have mine. No honey was taken in this neighbourhood.—A COUNTRY PARSON, *Hungerford*.

P.S.—Last year I covered the roofs of several of my hives with three layers of stout brown paper, painting each thickly before the next was laid on, giving three coats at last; I find it stands very well, and is so much cheaper than zinc: but I have no doubt the 'paper felt' mentioned in February No. of *B. B. J.*, is better.

HONEY JARS.

At the conversazione of the British Bee-keepers' Association in January last I exhibited a few patterns of honey glasses of French make, offering to receive from bee-keepers orders for small quantities, put all together, and import in one lot, thus saving expense, and distribute them. The only responses I received were from two gentlemen in the room, whose united requirements, however, were so small as to be impracticable to obtain. Will you allow me, therefore, to remind your readers that I am still willing to obtain these glasses for them if they will send me their requirements by the 15th of April? I annex a short description of the patterns. The prices are intended to include cost, freight, packing, &c. to London. I will undertake the trouble of receiving and distributing such quantities as may be desired; they will arrive about the end of May.—F. LYON, 94 *Harleyford Road*, S.E., *23rd March*.

Number.	Description.	Price per gross.
1915	Cylindrical jars with feet, with screw caps nickel plated, and cork lined contents about 14 oz.	29/-
2057	Same Pattern " " " " 16 oz.	30/-
1938	Cylinders, with screw caps as above " " " " " " 2 lb.	45/-
2055	10 sided, with screw cap as above " " " " " " 14 oz.	29/-
1238	Fluted jars with glass caps " 14 oz.	33/-
1232	Plain cylinders, glass caps " 14 oz.	26/-
2050	Fluted jars, glass caps " " 1 lb.	26/-
503	12 sided fluted jars, with lips for tying over " " " " " 1 lb.	16/-

FREAK OF BEES IN ALSACE.—QUEEN ENCASEMENT (?)

I have been asked by M. Dennler to send you the translation of the following very curious circumstance:—

A few days ago one of M. Dennler's best hives in the garden close to his house was observed by M. D.'s father to be in a state of abnormal excitement, the bees crowding outside the entrance, and buzzing about wildly. On going up to see what was the matter, he saw the queen walking about outside on the alighting-board surrounded by the bees, who did not attempt to harm her. She remained outside for a time, and when she went in again all was quiet.

M. Dennler was from home at the moment, and only returned in the evening. Next morning he went out to look at the hive, and found the queen apparently dead on the gravel-walk in front of the apiary. M. Dennler picked her up, and was carrying her into the house to show her to his father, when he felt her move, and as soon as he got into the warm room she began to walk about on his hand. He then fed her with a few drops of honey, and about 11 a.m. (or three hours after he picked her up) he put her back in her hive, after having sprinkled her with scented syrup.

The hive remained perfectly quiet all day, but next morning M. Dennler found the queen outside on the gravel-walk, apparently dead, as on the day before. This time, by the same care, the queen was again revived, and was replaced in her hive, under the protection of a queen-cage; but at the expiration of forty-eight hours when M. Dennler went to release her, he found her dead inside the cage. The bees after this at once began to build queen-cells, which, however, would have been useless in the absence of drones.

The *dénouement*, however, was not less singular. The day after the queen was found dead, M. Dennler observed a very small swarm, which came and alighted on the corner of his apiary. The queen of it had fallen down on the ground with a small cluster of bees, and to pick her up, place her in a cage, and introduce her into the recently queenless hive, was the work of ten minutes. This queen has since been accepted by the hive, which is going on in perfect order.

What was the cause—1st, of the queen coming out? 2nd, of her death? She was a very fine, healthy young queen—a hybrid Italian; and the bees appeared in no way hostile to her. Can you explain this? M. Dennler says he is unable to do so. The whole history is a most curious one.—G. F. PEARSON.

[With considerable diffidence, as in the presence of so great an authority as Herr Dennler, we venture, in reply to the queries of our esteemed correspondent, to suggest that the queen seen on the alighting-board, and which afterwards died in the cage, had been too rudely embraced by her bees in their anxiety to stimulate her to oviposition. We have found many cases of spring encasement, for which we could give no other reason than that the bees were caressing (too eagerly, perhaps) the queen mother, on whose fecundity the life of the hive depended, to stimulate her to increased fertility. This probably (as suggested last year) may account for the great number of regicides at this season. The appearance of the swarm, probably from a famine-stricken hive, we look upon as a coincidence, and congratulate Herr Dennler on his prompt way of utilising it. There is a possibility that the queen of the swarm may turn out a drone breeder, but we scarcely think the premises in favour of that view would have escaped the notice of the distinguished bee-master named.—ED.]

PROFITS OF BEE-KEEPING.

In a report in a Hertfordshire newspaper which has just fallen into my hands I find the following :—

'Bringing before the audience next the question by profits arising from bee-keeping, Mr. Cheshire said he had been already found guilty of having made a statement that the cottager could realise three pounds per hive in a year, and after stating so much he had something to do towards proving it if he could.'

Will Mr. Cheshire oblige doubtless a very large section of bee-keepers by giving the information his implied promise led me to expect, but which did not appear in the report mentioned?—A QUESTIONER.

Echoes from the Hives.

Uffington, March 23.—'Bees all wintered well, except one stock, which has dwindled away from being queenless. They have been collecting pollen, when the weather permitted, ever since the 19th of February; and all appear very strong now, having had several picnics with syrup and pea-flour. Breeding has been going on for some time. I found the Hampshire Tubular Feeder everything that could be wished for, for straw skeps, or, in fact, for any kind of hive they are equally useful, being so simple, cheap, and easy to manage.—J. S.'

Middleton, Yorkshire.—'There is hardly a bee left about here; all the Cottagers' have died. I consider the *B. B. J.* an excellent paper.—A. W. C.'

S. Warnborough.—'The "let-alones" among bee-keepers have a good time of it this year. You will have had an order for barley-sugar from a bee-keeper here. The poor old crochet has been beating about to establish a theory of his own, but is at last compelled to give in or lose all, and his disciples are in about the same fix.—W. H.'

Newton Tetbury.—Hive Entrances.—'Would not a good plan for avoiding draught through entrance in winter be to put wings to the porch, as suggested by a correspondent lately in *B.B.J.*, and perforated zinc flight-board with a moveable shutter to shut close, or nearly, over front of porch, allowing the ventilation to come only through the perforated zinc flight-board? This is what I have done in a hive I have made.'

Wargrave.—Open v. close frame ends.—'I see in the March number an admirable design for frames, which I have always thought most necessary. It seems to me to combine two great advantages: (1) The making an inside shell for the bee-nest; and (2) The keeping the frames in their exact places. I shall try and fit it to my present frames. When I have time, being something of a carpenter, I make my own hives, thus: ordinary Make-shift hive, upon a reversible floorboard, with outer case in two pieces. So that in summer there is dead air space; in winter the bottom half can be so easily packed with chaff. The roof is sufficiently high (made with three boards) to take in feeding-bottle and super. I drive four stakes into the ground, the two back a little higher than the front. A simpler or cheaper I cannot conceive. All this I have gathered from your *Bee Journal*. I shall exhibit one at our Cottagers' Show, to induce the labouring people to make them. I for one willingly testify to the pleasure and profit which your *Journal* has been to me.—H. C. S.'

Hailsham.—Dry Sugar for Bees.—'You still deny bees take dry sugar, but I can't quite agree with you. As, if laid on their alighting-board, quite dry, and in the middle of the day, they very soon carry it all inside the hive, and many feed entirely with dry sugar.—E. S.'

[We have never seen bees carry dry sweets into their hives, but have many times seen them carry out and throw away crystals and granules of honey, and confectioners' barley-sugar, which they appear unable to utilise.—ED.]

Stockton-on-Tees.—'I inspected my bees on the 4th March, and have never found them winter so well before, although I felt very doubtful about them last autumn. I had generally moved them on to a covered shed and packed between them with sawdust, and although they never suffered much, yet there was always more or less damp on the floor-boards then. Last autumn I had not room for them, so I merely gave them new thick quilts and dry floor-boards, and left them in double-walled hives without the smallest protection, and on inspecting them there was not the slightest sign of damp. Only in two was any sealed brood, and two were almost honeyless. But I have commenced to feed, and have no fears for them now.—C. G. F.'

[Removal for wintering to sheds near the old stands is a dangerous practice, as so many bees are likely to be lost, or be killed through getting into wrong hives.—ED.]

NOTICES TO CORRESPONDENTS & INQUIRERS.

ROSLYN, DUNEDIN, NEW ZEALAND.—*Observatory Hive.*—You will probably find the information sought in the back numbers of the *Journal*, but as a general instruction, a unicomb hive should have a space of $1\frac{3}{4}$ inches at the most between the inner glasses forming the sides. The outer glasses may be any reasonable distance from the inner, but a quarter of an inch space is sufficient. There should be a quarter of an inch space allowed between and around all the frames, and the entrance should be by the nearest possible way. It is best to stock an observatory with frames of brood and bees from a full hive, as there is often difficulty in causing the bees to build straight in narrow spaces; they like to live *between* combs, and will very frequently build them across from glass to glass, in preference to building between them. The best form of observatory hive is depicted in the November number of *Journal*, as in it bees can 'live, and move, and have their being,' as conveniently and as profitably as in any other hive.

FOUNDATION.—Foundation can be sent in safety if protected from the direct heat of the sun. Plaster casts are to be had in England, but they do not make good work. We hope to have our wood-foundation machine in operation shortly, and its description, when ready, will enable you to make one for yourself. In the meantime it will be cheaper to buy the foundation, or if a large quantity is required, to purchase a machine out-and-out. The price in America is about 6*l.* for a six-inch machine. The cash received will pay for *Journal* to July 1881, inclusive.

LEICESTER.—A lady is anxious to visit an apiary near Leicester, where she may see the improved system of bee-keeping carried on with bar-frame hives, and get a lesson on their management. We shall be glad if any one willing to oblige will favour us with his address, that we may arrange an appointment.

A NORTHERN BEEKEEPER.—Several plans for shading hive-entrances and protecting them from wind have been given of late in the *Journal*. A porch with low adjustable front appears to offer the best conveniences.

ROBERT RANGER.—The bees in the mill not being easy to reach, we would feed them by placing a dish containing syrup and chopped straw, and a box of pea-flour and shavings, where they would be easily accessible. Outside a window would be a good place, and their antics could be observed in perfect safety. As they had their honey removed in 1878, and have

survived the summer and winter of 1879, there is little danger of their being foul-broody. The same means adopted when taking the honey would avail for getting to them to remove a swarm. We should prefer to do this from the inside of the mill if possible, removing a portion of the boarding, and tumbling the bees out with fungus fumes. The swarm (being artificially made) would have to be sent to a distance, or kept in confinement in the dark for a day or two, after which having clustered and commenced comb-building, they would adhere to their home, even though near the old location. Otherwise many would be likely to return to the old nest.

H. SMITH, *Woolwich.—Artificial Swarming.*—The process of 'driving,' essential in making artificial swarms from skeps, is fully described in a leaflet on the subject, price 1*d.*, from this office, post free.

G. RINGER, *Diss.*—Your plan of feeding bees by pouring syrup through perforated zinc on the top of hive, is too crude a method to merit further description. The leaflet on feeding, free for 1*d.* stamp, will greatly help you. *Whistling to the bees* can scarcely be effective in calling their attention if, as Sir John Lubbock asserts, they have no sense of hearing. We have, however, little faith in his deductions. *Overhauling* is really a very simple matter, and requires only a knowledge of their habits to enable you to perform the 'fearful operation' with ease. Blow a little smoke into the hive entrance, one blast from an inverted pipe will do, and gently tap the hive for a minute to keep the bees in a state of alarm: they will, under that influence gorge with honey from the open cells, and in that state will be harmless and indisposed to attack. If you burn puff-ball beneath the hive they will fall down in a state of asphyxia. *Queenlessness* is discovered by ascertaining the absence of her majesty, by looking into the hive. In summer, the absence of brood is sufficiently indicative. Bees do not live more than six weeks in summer, so if, as you suggest, your hives were deprived of their queens, you would effectually prevent swarming, and soon have teuantless hives. The queen lays all the eggs that develope into worker-bees, and if you stop her egg-laying, the stock will immediately begin to fail for lack of population. The removal of queens would certainly stop the rapid increase you dread, but it would be unwise to effect the object in that way. If you fear you will have too many stocks it will be well to sell some of your swarms, or deprive some of your stocks of their honey in the autumn, and unite the bees to others.

JAS. A. PAGE, *Jericho.—To make a Standard Hive.*—Your easiest and cheapest plan will be to get one of our Make-shift Standards, price 4*s.* 6*d.*, which contains frames and body of correct pattern: and having secured it to four legs, case it outside the legs and add self-evident fittings to make it complete. Unless you have the pattern you may make many mistakes, but, having it, you can increase the size and number of frames to any extent you please. A pattern frame would be a help, and if you bear in mind that the hive sides should be even with the top of the frames, and that there should be a quarter inch space at bottom and at each end, you can scarcely go wrong.

C. F., *Shrewsbury.—Fixing foundation.*—Full directions were given in Vol. VI. *B. B. J.*, p. 205, and we do not think any improvement has been made since.

W. PAGE, *Fife.*—Queen-encasement is very common at this time of year, and our remarks at end of 'Freak of Bees in Alsace,' apply equally to your case. Many queens are yearly sacrificed at this season by encasement, a fact only lately observed. Encasement, it would appear, is a natural act, but dangerous when carried to extremes.

COVERS for binding Volumes of the *British Bee Journal* may be had from our office, Southall, Middlesex, price one shilling, postage 2½*d.* The Index to Volume VII. will be found in the April number.

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[No. 74. Vol. VII.] JUNE, 1879. [PUBLISHED MONTHLY.]

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Instituted 28th October, 1874.

THE SIXTH GRAND SHOW of HONEY, HIVES, and BEES, will be held at PERTH, in connexion with THE HIGHLAND AND AGRICULTURAL SOCIETY'S SHOW, on the 29th, 30th, 31st July, and 1st August, 1879.

Subject to alteration at Committee Meeting before Show.

PRIZE LIST.

CLOVER OR FLOWER HONEY.

	1st.	2nd.	3rd.
1. For the two best Supers above 20 lbs. each	25/0	15/0	7/6
2. For the best Super above 20 lbs.	10/0	7/6	5/0
3. For the best filled and finished Super above 10 lbs. and under 20	10/0	7/6	5/0
4. For the best sample of Run or Extracted Honey, not less than 4 lbs., to be exhibited in the Society's Glasses, which will be provided at the Show	10/0	7/6	5/0
5. For the best Exhibition of Pure Honey in Sectional Supers, separable, and of not more than 4 lbs.; total weight of each entry to be not less than 20 lbs.	20/0	10/0	7/6
6. For the best glass Super above 10 lbs. weight	10/0	7/6	5/0
7. Prettiest design in Honey-comb, worked by the bees	15/0	10/0	5/0
8. For the best Exhibition of Sectional Supers in an attractive and saleable form, no Section to be over 2 lbs.	10/0	7/6	5/0
9. Special Prize, offered by Mr. R. STEELE, Hivemaker, Fowlis, Dundee, and the Rev. JOHN IRVINE, Innellan—For the best Exhibition of Pure Honey in Sectional Supers, each Section to be separable, and not more than 1 lb.; the total weight of each entry to be not less than 20 lbs. A Double-walled Bar-frame Hive, with Cover and Stand complete.		10/0	5/0
10. Special Prize, offered by Mr. R. J. BENNETT and Mr. WM. SWORD—For the best Exhibition of Pure Honey in Sectional Supers, each Section to be separable, and not more than 3 lbs. each; total weight of each entry to be not less than 12 lbs.; the Honey to be submitted to analysis if required by the Judges	25/0	15/0	10/6

Special Prize, offered by Mr. W. W. YOUNG, Hivemaker, 150 High Street, Perth—For the best Table Display of Pure Honey and Comb, the product of any One Apiary during 1879 Honey Extractor, or, if preferred, Bee Furniture to the value of 25/0

The Glass can again be exhibited in No. 6 Class.

HIVES AND WAX. (*All Hives to be fitted with Guides ready for use.*)

11. For the best Hive for observation purposes, all Combs to be visible on both sides, Stocked with Bees and their Queen	Silver Medal and 10/0.	Bronze Medal and 7/6.	Bronze Medal.
12. For the best and most perfect Bar-frame Hive with Super, or set of Sectional Supers, and Cover complete	Silver Medal.	Bronze Medal.	Certificate and 7/6
13. For the most perfect Hive on the storifying principle, with the best arrangement for securing harvest of Comb Honey	Silver Medal.	Bronze Medal.	Certificate.
14. For the best Straw Hive of any description	Small Silver Medal.	Small Bronze Medal.	Certificate.
15. For the two best samples of Wax, in cakes of not less than 1 lb. each	7/6	5/0	2/6
16. For the best sample of Wax Guide Sheets, not less than Six Sheets	7/6	5/0	2/6
17. For the best Bar-frame Hive on the Moveable Comb Principle, with Cover and Stand complete, stocked with Bees and their Queen	Silver Medal.	Bronze Medal.	Certificate.

COMESTIBLES.

18. For the best Liqueur or Wine made from Honey, with recipe attached, not less than two quarts.	Silver Medal.	Bronze Medal.	Certificate.
19. For the best Mead or Beer made from Honey, with recipe attached, not less than two quarts.	Small Silver Medal.	Small Bronze Medal.	Certificate.
20. For the best Sweetmeats, made with Honey, not less than 2 lbs., with recipe attached.	Silver Medal.	Bronze Medal.	Certificate.
21. For the best Cakes made with Honey, with recipe attached, not less than 2 lbs.	Silver Medal.	Bronze Medal.	Certificate.

The samples to which 1st Prize is awarded in Classes 18, 19, 20, *and* 21, *shall become the property of the Society, to be used at the Judges' Dinner.*

MISCELLANEOUS.

22. For the best and largest collection of Hives, Bee Furniture, Bee Gear, and Apiculturists' necessaries, no two articles to be alike	Silver Cup and 20/0.	30/0	20/0
23. For the best Bee Feeder	Small Bronze Medal.		
24. For the cheapest, neatest, and best Supers for producing Honey-comb in a saleable form	Small Bronze Medal.	Certificate.	
25. For the best Honey Extractor, cost to be taken into consideration	Silver Medal.	Bronze Medal.	Certificate.
26. For any new invention calculated in the opinion of the Judges to advance the Culture of Bees	Bronze Medal.	Certificate.	
27. For the best Chemical or other test for detecting spurious from genuine honey—to be practically demonstrated to the Judges' satisfaction within 15 minutes	Silver Medal and 10/0.	Bronze Medal and 7/6.	Certificate and 5/0.

MISCELLANEOUS—*Continued.*

28. For the best and most interesting Collection of Natural Objects, Models, or Diagrams connected with Apiculture, and illustrating the Natural History and Economy of the Honey Bee ... ... Silver Medal. Small Silver Medal. Small Bronze Medal.

29. For the best and largest display of Honey Producing Plants, in a dried state or otherwise, such Plants to have a card attached, stating time of flowering, duration of bloom, and any other particulars calculated to be of interest to Bee-keepers ... ... 'Langstroth on Bees.' 'Neighbour's Apiary.' 'Hunter's Bee Manual.'

30. Driving Competition, extending through the four days of the Show—For the Competitor who, without assistance, and without veil or gloves, shall in the neatest, quickest, and most complete manner drive out the bees from a straw skep, of not less than 14 ins. diameter, and capture and exhibit the Queen ... ... Silver Medal. Small Silver Medal. Bronze Medal.

NOTE.— The Competitors in No. 30 who gain the First Prize on the Three days, will, on the Fourth, compete fo the Highland and Agricultural Society's Medal.

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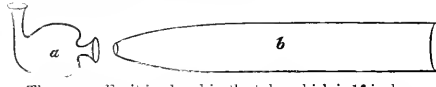

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Classes 1 to 8 open to all England. Classes 9, 10, 11, 12, 13, and the Honey Fair, open to Members of the Hertfordshire Association, and other residents in the County of Herts.

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The Bees to be exhibited living with their Queen in Observatory Hives.

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3. For the best and most complete Hive on the moveable comb principle, to include covering, stand, floor-board, and facilities for storing surplus honey. 20/0 10/0 5/0

4. For the best complete Hive on the moveable comb principle for Cottager's use, to include cover, floor-board, and facilities for storing surplus honey. Price not to exceed 10/0. 20/0 10/0 5/0

5.—For the best Straw Hive on the moveable comb principle. 15/0 7/6 5/0

6.—For the best and neatest Supers for producing honey in the comb in the most attractive and saleable form. 7/6 5/0 2/6

7.—For the best Honey Extractor, calculated to meet the wants of Cottagers. 20/0 10/0 5/0

8.—For the best and most complete Collection of Hives and Bee Furniture; no two articles to be alike. 20/0 10/0 5/0

All Hives, etc., in the above Classes, to be made or designed by the Exhibitor.

The Judges are empowered to increase the Prizes in this Class, and to award Extra Prizes if the collections are in their opinion of sufficient merit.

HONEY.

All Honey to be Judged according to Quality and Purity, being the produce of 1879, and gathered by the Exhibitor's own Bees in the Natural way.

8a.—Same as Class 9, but open to all Competitors—English or Foreign. Entrance Fee, 2/6. 20/0 10/0 5/0

9.—For the best Exhibition of Honey in Supers, or Sections of Supers, separable, and each not more than 2 lbs. in weight; the total weight of each entry to be not less than 10 lbs. 10/0 7/6 5/0 2/6

10.—For the best Single Section in the Comb, weighing not more than 3 lbs. 7/6 5/0 2/6

11.—For the best Exhibition of Pure Extracted Honey in Glass Jars; not to exceed 2 lbs. each; each entry to consist of not less than eight jars. 10/0 7/6 5/0 2/6

A Bar-frame Hive, value 1*l.*, will be given as a Special Prize for the best Exhibit made by a *bona fide* Cottager in Classes 9, 10, and 11; the Exhibitor being a Member of the Hertfordshire Association.

12.—For the best Exhibition of Honey in the Comb, taken from one Hive without destroying the Bees. Open to all *bona fide* Cottagers residing in Hertfordshire. (No entrance fee). 7/6 5/0 2/6

DRIVING COMPETITION.

13.—For the Competitor who shall in the neatest, quickest, and most complete manner, drive out the Bees from a Straw Skep, capture and exhibit the Queen. Each Competitor to provide his own Bees. 20/0 10/0 5/0

The system of Open Driving shall be adopted, the Receiving Hive to be inclined at such an angle as shall permit the passage of the Bees to be seen by the Spectators. Veils and gloves may be worn by the Competitors. Members of the 'Herts Bee-keepers' Association' will be admitted to the Bee Tent to witness the Driving Competitions, on production of their Member's Ticket. An Admission Fee of 6*d.* each for the two first displays, and of 3*d.* each to all subsequent displays will be charged to Non-Members. These Competitions will commence at 2 o'clock in the afternoon.

13a.—Driving and Transferring Competition, open to all Competitors, English or Foreign, to be held on Thursday, October 2nd, at 2 p.m. No veils or gloves to be worn. Competitors to provide their own Bees and Hives. Entrance Fee 2/6. 30/0 20/0 10/0

HONEY FAIR.

14.—A distinct Counter will be appropriated at both Shows for the Sale of Honey in the Comb and in Glass Jars, and in this department Sales will be permitted, and Goods delivered at all times during the Show. Invoices must be sent with each consignment of Goods, stating the prices and weights of the various Supers, Glasses, &c.

14a.—Open to all Persons not residing in the County of Hertford.

The Association will provide Salesmen, but will not undertake to break bulk, nor allow it to be done.

The British Bee-keepers' Association offer a Silver Medal, Bronze Medal, and Certificate, to the three Exhibitors (being Members of the Hertfordshire Association), to whom shall have been awarded the three largest amounts of Prize Money in Classes 9, 10, and 11.

No Entrance Fees in Classes 14 and 14a.

RULES.

1. Entrance Fees for Members of the Association, 1/0 for each entry. Non-Members, 2/6 each entry. Exhibitors will be charged 1*d.* in the 1/0 on all Sales effected throughout the Show.

2. Each intending Exhibitor must return his (or her) Entry Form properly filled up, stating the price at which they will sell their Exhibits (which must in all cases include the package in which it is sent), and accompanied with the requisite fees, addressed to the Rev. H. R. PEEL, Abbot's Hill, Hemel Hempstead, on or before Saturday, Sep. 20th.

3. All Exhibits must have a label attached, *distinctly marked* with the number of the Class in which they are intended to be exhibited.

4. All Exhibits sent by rail or carrier must be delivered at the place of exhibition *carriage paid*.

5. No Exhibits will be received for Competition after 11 o'clock on the morning of the Show.

6. Any person exhibiting Honey for competition which is not this year's produce and gathered by his or her own Bees, or committing Fraud in any other way, will be disqualified, and their Exhibits marked accordingly.

NOTE.—Entry forms will be supplied on application to the Hon. Secretary. The Committee will take every care of all Exhibits; but will not be responsible for any loss or damage.

Entries will not be received after Saturday, September 20th.

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Une Colonie en ruche à cadres mobiles	40 „	38 „	36 „	35 „

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[No. 76. VOL. VII.] AUGUST, 1879. [PUBLISHED MONTHLY.]

NOTICE.—*The* BRITISH BEE JOURNAL *is on sale at* KENT & Co.'s, 23 *Paternoster Row.*

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[ENTERED AT STATIONERS' HALL.]

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THE BEE-KEEPER'S ALMANAC, which contains Prognostications of Weather expected, and What to Do in Bee Management. By P. E. Martin, Master Mariner, Bee Master, Proprietor and Manager of the Bee Farm, Inventor of the 'Sailors' Bee-Hive,' now the 'Standard' Bar-frame Hive for the United Kingdom. Price 6*d*. each, per post 7*d*.

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RULES, &c.—*Continued.*

Entrance Fees.—For any number of Exhibits in either of Classes Nos. 1, 2, 3, 13, 14, 15, 16, 18, 19, 20, 21, and 22, Two Shillings for each Class. In all other Classes, One Shilling for each Class.

Entry Forms will be supplied on application to the Hon. Sec. of the Lincolnshire Bee-keepers' Association, Grantham, or to J. W. Swain, Secretary of the Long Sutton Agricultural Society.

All Exhibits must have a label attached, *distinctly marked*, with number of the Class for which they are intended, and if for Sale the price must also be *distinctly marked* on, and in the Honey Classes the *net weight* and *price*, which must include the vessel or package containing it, The Association will *not* undertake to break bulk, nor allow it to be done.

No Exhibit shall be allowed to compete in more than one Class.

Any person Exhibiting Honey for Competition which is not this year's produce, and gathered by his or her own Bees in the natural way, will be disqualified in all Classes throughout the Show, and all such Exhibits will be marked *Disqualified for fraud.* The Judges will be specially instructed to enforce this Rule.

The Association will provide Salesmen, through whose hands all monies must be paid; the Exhibitor will be charged One Penny in the Shilling commission on all Sales.

The Committee are desirous that all Exhibits should be delivered at the place of Exhibition by 6 p.m. on Tuesday, October 7th. None will be admitted after 10 a.m. on the day of Exhibition.

The Judges are empowered to withhold Prizes if the Exhibits in any Class are not considered of sufficient merit.

A Free Ticket of Admission will be furnished to Members and Exhibitors.

No Exhibit to be removed until after the close of the Exhibition, except Honey, which *purchasers* may remove by permission of the Committee, provided that the same has not obtained a Prize.

The Committee will take every care of all Exhibits entrusted to them for competition, sale, or otherwise, but they will not be responsible for any loss or damage from any cause whatever.

Entries close on Monday, September 29th, 1879.

MANIPULATION WITH LIVE BEES.

Practical illustrations of Manipulation with Live Bees, showing the best methods of Driving, Making Artificial Swarms, transferring Combs from Straw Skeps to Bar-frame Hives, finding Queens, &c. will be given during the days of Exhibition, by the great Bee-master, Mr. C. N. Abbott; also by Mr. J. G. Desborough, Mr. R. Symington, and other able Bee-masters. Arrangements will be made by which visitors may view with safety the mysteries of the Hive, and witness the perfect command the Scientific Apiarian has over his Bees.

The Committee will feel obliged by Bee-keepers making the Association and its object, as well as the forthcoming Exhibition, known amongst all who take an interest in Apiculture and the welfare of our Cottagers. The Committee have given careful consideration to the Prize Schedule which they hope will give general satisfaction. Wm. Carr, Esq. and other Eminent Apiarists have kindly promised to be present, and will explain the various Exhibits.

By order of the Committee,

R. R. GODFREY, Hon. Sec., Grantham.

Entry Forms and Schedules may be had of R. R. GODFREY, Grantham, Hon. Secretary of the Lincolnshire Bee-keepers' Association; or

J. W. SWAIN, Long Sutton, Secretary of the Long Sutton Agricultural Society.

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THE GARDENER.

A MONTHLY MAGAZINE OF HORTICULTURE AND FLORICULTURE.

EDITED BY DAVID THOMSON,

Author of 'Handy Book of the Flower-Garden,' 'Fruit Culture under Glass,' &c.

ASSISTED BY A STAFF OF PRACTICAL GARDENERS.

The Number for September contains:—

THE COLDNESS OF THIS SEASON AND NEXT YEAR'S FRUIT CROPS.
LUCULIA GRATISSIMA.
WALKS AND FOOTPATHS.
HERBACEOUS PÆONIAS.
HARDY FRUITS—SEPTEMBER.
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ORNAMENTAL TREES AND SHRUBS:—COTONEASTER (THE COTONEASTER).
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FRUIT CULTURE.
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HEATING BY HOT WATER.
THE GARDENER'S PRIMER, No. V.
ABUTILON BOULE DE NEIGE.
ECONOMY OF FUEL IN HORTICULTURAL ESTABLISHMENTS.
SMALL CHRYSANTHEMUMS FOR HOUSE FURNISHING.
PLUMS FROM THE PLUM-HOUSE AT CHATSWORTH.
ROUND LONDON.
SCOTTISH HORTICULTURAL ASSOCIATION.
NOTICES OF BOOKS.
CALENDAR—KITCHEN GARDEN—FORCING DEPARTMENT.
NOTICES TO CORRESPONDENTS.

Yearly Subscription, free by Post, 7s. Payable in advance.

*** *In the March Number of* 'THE GARDENER' *was commenced the first of an important Series of Papers under the heading of 'The Gardener's Primer.'*

WILLIAM BLACKWOOD AND SONS, EDINBURGH AND LONDON.

NOTTINGHAM AND NOTTS BEE-KEEPERS' ASSOCIATION.

THE ASSOCIATION will hold their EXHIBITIONS of HONEY, BEES, HIVES, &c., and PRACTICAL APIARIAN MANIPULATIONS, during 1879, in the Arboretum, on Friday and Saturday, September 5th and 6th.

Classes 1 to 8 open to all England. Classes 9, 10, 11, 12, 13, and the Honey Fair, open to Members of the Nottingham & Notts Association, and other residents in the County of Notts.

SCHEDULE OF PRIZES.

Class. BEES.

1.—For the best Stock of Ligurian or any other Foreign Bees. 20/0 10/0 5/0

2.—For the best Stock of English Bees. 20/0 10/0 5/0

The Bees to be exhibited living with their Queen in Observatory Hives.

HIVES, &c.

3.—For the best and most complete Hive on the moveable comb principle, to include covering, stand, floor-board, and facilities for storing surplus honey. 20/0 10/0 5/0

4.—For the best complete Hive on the moveable comb principle for Cottager's use, to include cover, floor-board, and facilities for storing surplus honey. Price not to exceed 10/0. 20/0 10/0 5/0

5.—For the best Straw Hive on the moveable comb principle. 15/0 7/6 5/0

6.—For the best and neatest Supers for producing honey in the comb in the most attractive and saleable form. 7/6 5/0 2/6

7.—For the best Honey Extractor, calculated to meet the wants of Cottagers. 20/0 10/0 5/0

8.—For the best and most complete Collection of Hives and Bee Furniture; no two articles to be alike. 20/0 10/0 5/0

All Hives, etc., in the above Classes, to be made or Designed by the Exhibitor.

HONEY.

All Honey to be Judged according to Quality and Purity, being the produce of 1879, and gathered by the Exhibitor's own Bees in the Natural way.

9.—For the best Exhibition of Honey in Supers, or Sections of Supers, separable, and each not more than 2 lbs. in weight; the total weight of each entry to be not less than 10 lbs. 10/0 7/6 5/0 2/6

10.—For the best Single Section in the Comb, weighing not more than 3 lbs. 7/6 5/0 2/6

11.—For the best Exhibition of Pure Extracted Honey in Glass Jars, not to exceed 2 lbs. each; each entry to consist of not less than eight jars. 10/0 7/6 5/0 2/6

Bar-frame Hives will be given as Special Prizes for the best Exhibit made by *bona fide* Cottagers in Classes 9, 10, and 11; the Exhibitor being a Member of the Notts Association.

Class. HONEY—*continued.*

12.—For the best Exhibition of Honey in the Comb, taken from one Hive without destroying the Bees. Open to all *bona fide* Cottagers residing in Nottinghamshire. (No entrance fee). 7/6 5/0 2/6

DRIVING COMPETITION.

13.—For the Competitor who shall in the neatest, quickest, and most complete manner, drive out the Bees from a Straw Skep, capture and exhibit the Queen. Each Competitor to provide his own Bees. 20/0 10/0 5/0

The system of Open Driving shall be adopted, the Receiving Hive to be inclined at such an angle as shall permit the passage of the Bees to be seen by the Spectators. Veils and gloves may be worn by the Competitors. Members of the 'Notts Bee keepers' Association' will be admitted to the Bee Tent to witness the Driving Competitions on production of their Member's Ticket. An Admission Fee of 6*d.* each for the two first displays, and of 3*d.* each to all subsequent displays, will be charged to Non-Members. These Competitions will commence at the Arboretum, at 2 o'clock in the afternoon of each day.

HONEY FAIR.

14.—A distinct Counter will be appropriated at the Show for the Sale of Honey in the Comb and in Glass Jars, and in this department Sales will be permitted, and Goods delivered at all times during the Show. Invoices must be sent with each consignment of Goods, stating the prices and weights of the various Supers, Glasses, &c.

The Association will provide Salesmen, but will not undertake to break bulk, nor allow it to be done.

The British Bee-keepers' Association offer a Silver Medal, Bronze Medal, and Certificate, to the three Exhibitors (being Members of the Nottingham and Notts Association), to whom shall have been awarded the three largest amounts of Prize Money in Classes 9, 10, and 11.

Further particulars may be obtained of

Mr. W. C. CHESHIRE,

Gelding, Notts.

FOR SALE.

FIFTEEN HIVES of BEES, mostly in Bar-frame Hives and Cottage Covers; several Empty HIVES, STEELE'S SLINGER, VEIL, GLOVES, KNIFE, &c., 20*l.* the lot. They are very cheap, as there is a good Crop of Honey, and the Hives have not been opened this year. The owner is moving into London. To be seen at Wye Cottage, Lion Road, Bexley Heath.

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Bronze Medal awarded for Straw Skeps at the Great Crystal Palace Show, 1875.

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By the late J. W. PAGDEN.

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No watching required.

Apply to Mrs. J. W. PAGDEN, the Chestnuts, Alfriston, Sussex, by whom the same manufacturers of 'Economical Bee Furniture' are employed as formerly. fo. 23.

London: Printed by STRANGEWAYS & SONS, at their Printing Office, Tower Street, Upper St. Martin's Lane, in the Parish of St. Giles's-in-the-Fields, in the County of Middlesex; and Published for the Proprietor by KENT & Co., 23 Paternoster Row, in the same county.—Aug. 31, 1879.

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION,

INSTITUTED OCTOBER 1875.

President: The Right Rev. the Bishop Suffragan of Nottingham.

THE ASSOCIATION will hold their FOURTH GREAT ANNUAL EXHIBITION of HONEY, BEES, HIVES, &c., and PRACTICAL APIARIAN MANIPULATIONS, in conjunction with the LONG SUTTON AGRICULTURAL SOCIETY'S SHOW, at Long Sutton, on Wednesday and Thursday, October 8th and 9th, 1879.

SCHEDULE OF PRIZES.

Class. **BEES.**

1.—For the best Stock, or Specimen of Ligurian Bees, to be Exhibited with the Queen in an Observatory Hive. 20/0 10/0 5/0

2.—For the best Stock, or Specimen of English Bees, to be Exhibited with the Queen in an Observatory Hive. 15/0 7/6 5/0

3.—For the best Stock, or Specimen of any Distinct Species of Honey Bees, other than Ligurians, or the British Black Bees, to be Exhibited with the Queen in an Observatory Hive. 20/0 10/0 5/0

HONEY.

4.—For the largest and best Supers of Honey, the produce of one Hive. 20/0 15/0 10/0 7/6

SPECIAL PRIZE, presented by Mr. C. N. Abbott, Fairlawn, Southall, a Honey Slinger, for the largest and best Exhibition in Class 4, by a Cottager, who shall be a Member of the Association.

5.—For the best Glass Super, under 20 lbs. nett weight. 15/0 10/0 7/6 5/0 2/6

6.—For the best Glass Super, under 10 lbs. nett weight. 10/0 7/6 5/0 2/6

SPECIAL PRIZE, presented by Mr. J. Bolton, Grantham, a Complete Bar-Frame Hive, for the best and largest Super of Honey Exhibited in Class 5 or 6, by a Cottager, who shall be a Member of the Association.

7.—For the best Wood, or Wood in combination with either Glass or Straw, Super of Honey. 20/0 15/0 10/0 7/6 5/0 2/6

8.—For the best Exhibition of Honey in Supers, or Sections of Supers, separable, in the most attractive form and each not more than 3 lbs. in weight, the total weight of each Entry to be not less than 12 lbs. 15/0 10/0 7/6 5/0 2/6

SPECIAL PRIZE, presented by Mr. E. W. Lister, of Oakwood, Kirkburton, Yorkshire, Lister's Hive for the Million, for the best Exhibit in Class 8, by a Cottager, who shall be a Member of the Association.

9.—For the best Straw Super. 10/0 7/6 5/0 2/6

SPECIAL PRIZE, presented by Mr. R. R. Godfrey, Grantham, Current Vol. of *B. B. Journal*, for the best Exhibit in Class 9, by a Cottager, who shall be a Member of the Association.

10.—For the best Glass of Extracted or Run Honey, of not less than 5 lbs. nett weight, quality to be the chief point of excellence. No Exhibitor will be allowed to take more than one prize in this Class. 10/0 7/6 5/0 2/6

SPECIAL PRIZE, presented by Mr. J. Plowright, of Grantham, Four Crystal Palace Supers (Wood and Glass), for the best Exhibit in Class 10 by a Cottager, who shall be a Member of the Association.

11.—For the best and largest Exhibition of Extracted or Run Honey, in Glass or other Jars, quality as well as weight will be taken into consideration. 20/0 15/0 12/6 10/0 7/6 5/0

All Honey must be bonâ fide the produce of 1879, *gathered by the Exhibitor's own Bees.* (*See Rules.*)

SPECIAL PRIZE, presented by Mr. G. Brett, of Grantham, Brett's Bar-Frame Hive, for the best designed Super, Sectional or otherwise, by an Amateur, who shall be a Member of the Association.

SILVER CUP.

The Silver Cup of the Association, open to Members only, for the best and largest Exhibition, in all or any of the Honey Classes, of Honey taken without destroying the Bees. The Cup to become the property of the Member who shall win it Three Times.

Class.

12.—For the finest sample of pure Bees' Wax, in cakes of not less than 2 lbs. 5/0 2/6

13.—For the best Liqueur, Wine, or Mead made from Honey, with the recipe attached. 10/0 5/0 2/6

HIVES.

14.—For the best Hive for Observation purposes. 20/0 10/0

15.—For the best Complete Hive, on the moveable comb principle, with facilities for storing surplus honey. 20/ 10 0 5/0

16.—For the best and cheapest Complete Hive, on the moveable comb principle, suitable for Cottagers, price not to exceed 10/0. 15/0 10/0 7/6 5/0

17.—For the best and cheapest Straw Skep, of any description. 7/6 5/0 2/6

18.—For the best and cheapest Sectional Supers for producing Honey in the Comb in a saleable form. 10/0 5/0 2/6

19.—For the best Honey Extractor, portability and cheapness to be considered. 20/0 10/0 5/0

20.—For the best and most complete Collection of Hives, Bee Furniture, and Apiculturist's necessaries, no two Articles to be alike. 30/0 20/0 10/0

21.—For the best and most interesting Collection of Natural Objects, Models, or Diagrams, connected with Apiculture, and illustrating the Natural History and Economy of the Honey Bee. 20/0 15/0 10/0

22.—For the best and largest display of Honey Producing Plants, in dried state or otherwise, such Plants to have a card attached, stating time of flowering, duration of bloom, and any other particulars calculated to be of interest to Bee-keepers. 1st Prize, Langstroth on Bees. 2nd Prize, Current Volume of *B. B. Journal*.

EXTRA EXHIBITS.—The Judges will be empowered to award Prizes for any Exhibit not included in the above Classes, having a bearing on the science of Bee Culture.

Entry Forms and Schedules may be had of

R. R. GODFREY, Grantham,

Hon. Secretary of the Lincolnshire Bee-keepers' Association;

or J. W. SWAIN, Long Sutton,

Secretary of the Long Sutton Agricultural Society.

RULES.

Every intending Exhibitor must send his Name and Address, *enclosing Entrance Fee*, to the Hon. Secretary before the 4th of October, 1879.

RULES, &c.—*Continued.*

Entrance Fees.—For any number of Exhibits in either of Classes Nos. 1. 2, 3, 13, 14, 15, 16, 18, 19, 20, 21, and 22, Two Shillings for each Class. In all other Classes, One Shilling for each Class.

Entry Forms will be supplied on application to the Hon. Sec. of the Lincolnshire Bee-keepers' Association, Grantham, or to J. W. Swain, Secretary of the Long Sutton Agricultural Society.

All Exhibits must have a label attached, *distinctly marked*, with number of the Class for which they are intended, and if for Sale the price must also be *distinctly marked* on, and in the Honey Classes the *net weight* and *price*, which must include the vessel or package containing it, The Association will *not* undertake to break bulk, nor allow it to be done.

No Exhibit shall be allowed to compete in more than one Class.

Any person Exhibiting Honey for Competition which is not this year's produce, and gathered by his or her own Bees in the natural way, will be disqualified in all Classes throughout the Show, and all such Exhibits will be marked *Disqualified for fraud.* The Judges will be specially instructed to enforce this Rule.

The Association will provide Salesmen, through whose hands all monies must be paid; the Exhibitor will be charged One Penny in the Shilling commission on all Sales.

The Committee are desirous that all Exhibits should be delivered at the place of Exhibition by 6 p.m. on Tuesday, October 7th. None will be admitted after 10 a.m. on the day of Exhibition.

The Judges are empowered to withhold Prizes if the Exhibits in any Class are not considered of sufficient merit.

A Free Ticket of Admission will be furnished to Members and Exhibitors.

No Exhibit to be removed until after the close of the Exhibition, except Honey, which *purchasers* may remove by permission of the Committee, provided that the same has not obtained a Prize.

The Committee will take every care of all Exhibits entrusted to them for competition, sale, or otherwise, but they will not be responsible for any loss or damage from any cause whatever.

Entries close on Saturday, October 4th, 1879.

MANIPULATION WITH LIVE BEES.

Practical illustrations of Manipulation with Live Bees, showing the best methods of Driving, Making Artificial Swarms, transferring Combs from Straw Skeps to Bar-frame Hives, finding Queens, &c. will be given during the days of Exhibition, by the great Bee-master, Mr. C. N. Abbott; also by Mr. J. G. Desborough, Mr. R. Symington, and other able Bee-masters. Arrangements will be made by which visitors may view with safety the mysteries of the Hive, and witness the perfect command the Scientific Apiarian has over his Bees.

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ASSISTED BY A STAFF OF PRACTICAL GARDENERS.

The Number for October contains:—

FLOWER-GARDENING OF THE SEASON.
NOTES FROM THE PAPERS.
THE RIPENING OF WINTER-FLOWERING PLANTS.
THE AMATEUR'S GARDEN—PEAS AND BEANS.
NOTES ON DECORATIVE GREENHOUSE PLANTS:—THE CINERARIA.
KALOSANTHES COCCINEA.
HARDY FRUITS—OCTOBER.
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TUBEROUS BEGONIAS AS BEDDING-PLANTS.
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British Bee Journal,

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[No. 78. Vol. VII.] OCTOBER, 1879. [Published Monthly.]

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NOTICE.

ABBOTT BROS. have purchased the whole of the BEES, HIVES, and BEE-FURNITURE of a Gentleman, whose extended business prevents his giving the attention required by his Pets, so that presently a GREAT SALE will be announced at which everything will be sold by Auction, without reserve, at Fairlawn, Southall, within easy distance of London.

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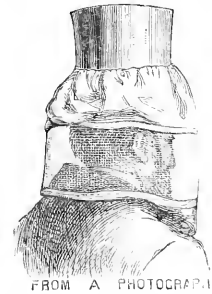

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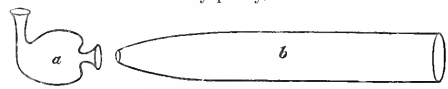

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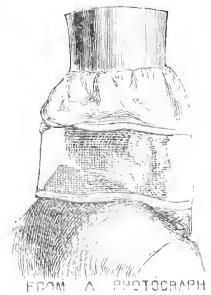

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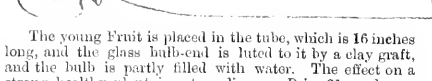

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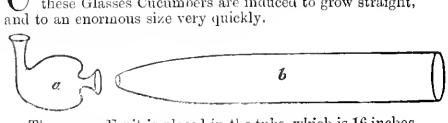

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[No. 83. Vol. VII.] MARCH, 1880. [Published Monthly.]

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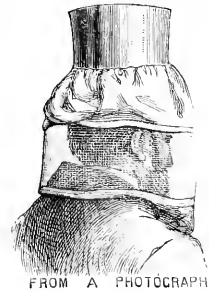

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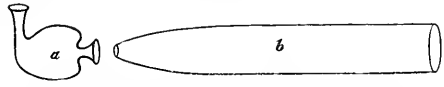

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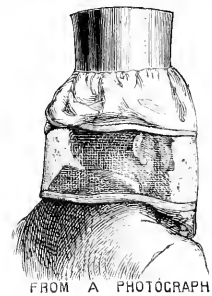

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DO NOT HINDER THE SIGHT, NOR CONFINE THE BREATH.

First Prize for best Bee Dress, at South Kensington, 1879.

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This Lotion will be found to almost instantly remove the pain of a sting and prevent subsequent inflammation. It is also a remedy for scalds, burns, and the stings and bites of other insects besides Bees.

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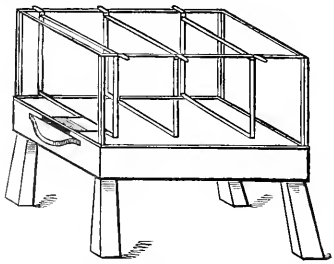
AGENT—

MR. C. N. ABBOTT, Editor of *B. B. Journal*, Fairlawn, Southall. fo. 15

OBSERVATORY HIVES.



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STOCKS and SWARMS of these beautiful and superior BEES, from the finest strain of Ligurian Bees to be found in Europe, containing imported Queens from Switzerland, specially selected.

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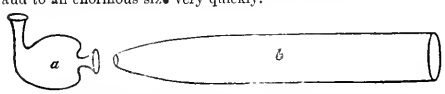

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BRITISH BEE-KEEPERS' ASSOCIATION.

INSTITUTED 1874.

PRESIDENT ... ... THE BARONESS BURDETT-COUTTS.

THE ASSOCIATION will hold their SIXTH GREAT EXHIBITION of Bees and their Produce, Hives, and Bee Furniture, and HONEY FAIR, at the Royal Horticultural Society's Gardens, South Kensington, in connexion with the Society's FLOWER SHOW, on Tuesday, Wednesday, Thursday, Friday, Saturday, July 27, 28, 29, 30, 31, and Monday, August 2, 1880.

RULES AND REGULATIONS.

1. That all persons intending to exhibit shall return their Entry Forms (on or before Saturday July 17th) to the Secretary, stating distinctly the number of entries to be made in each class, the space which will be occupied by the articles exhibited, and the prices at which they will sell their exhibits.

2. That all articles exhibited in competition must be *bonâ fide* the property of the Exhibitor. All honey must have been gathered in the natural way during the current year. Exhibitors to whom prizes may have been awarded shall sign a declaration to the above effect (if required to do so); and should any infringement of this rule be discovered all awards shall be forfeited, and the so offending person be disqualified from exhibiting for three years.

3. That all Exhibitors are required to state on their Entry Forms the prices at which they will sell their exhibits, otherwise they will be entered in the catalogue *Not for Sale*, and so labelled at the Show.

4. A Label will be sent for each entry made, and the Exhibitor must write his name legibly and distinctly on the reverse side for the return journey. All Exhibits must be delivered, carriage paid, at the place of exhibition on Monday, July 26th. Exceptions:—Exhibits in the classes for Honey may be delivered by the Exhibitor himself, or his assistants on the morning of the Show, not later than ten o'clock.

5. That all articles exhibited shall be considered as entrusted to the care of the Committee from the time they are delivered at the place of exhibition until the close of the same, and that no interference shall be allowed with the exhibits during that time without the special permission of the Committee, who will take every care of them, but will not be responsible for any loss or damage that may occur.

6. That the Judges be appointed by the Committee, and that their decision be final in all cases.

7. That the Judges shall have the power of withholding any prize in the case of an exhibit of insufficient merit, and shall also have the power of awarding an extra or special prize to any exhibit which they may consider specially meritorious.

8. That no person other than the Secretary and his assistants can be allowed, on any pretence whatever, to be present during the examination of the exhibits by the Judges, except at the special invitation of the latter.

9. That a Judge shall not be allowed to adjudicate in any class in which he may be an Exhibitor.

Note.—*Exhibitors are requested to read all the Rules and Regulations carefully, as no Exhibitor will be absolved from the effects of them on any allegation whatever.*

SCHEDULE OF PRIZES.

HIVES and BEES.

All frame hives to be fitted with guides ready for use.

Class. Prizes.

1. For the best Frame Hive, fully stocked with bees and combs, with sectional supers in process of filling, separators and end glass to be in position; due consideration to be given to straightness of combs, scarcity of drone cells in Breeding Hive, amount of brood and strength of population, cleanliness of the whole. The facilities afforded by the hive for examination when supers are filling to be taken into consideration. The bees will be located in the gardens.
   1st Prize, silver medal and 40/0
   2nd ,, bronze medal and 20/0
   3rd ,, certificate and 10/0

*2. For the best stock of Ligurian bees
   1st Prize, silver medal.
   2nd Prize, bronze medal. 3rd Prize, certificate.

Class. Prizes.

*3. For the best stock of Cyprian bees ... ... 1st Prize, silver medal.
   2nd Prize, bronze medal. 3rd Prize, certificate.

*4. For the best stock of other Foreign bees ... ... 1st Prize, silver medal.
   2nd Prize, bronze medal. 3rd Prize, certificate.

* The bees to be exhibited living with their Queen in Observatory hives. All combs to be visible on both sides. These classes are distinct from Class 5.

5. For the best hive for observation purposes, all combs to be visible on both sides, to be exhibited stocked with bees and their Queen. 1st Prize, silver medal.
   2nd Prize, bronze medal. 3rd Prize, certificate.

6. For the best moveable comb hive. This hive must be exhibited in duplicate, firstly, for summer use, with facilities for harvesting honey; secondly, with arrangements for winter use ... ... 1st Prize, silver medal
   2nd ,, bronze medal
   3rd ,, certificate

SCHEDULE OF PRIZES—Continued.

Class. Prizes.

7. For the best frame hive of a substantial character for general use in an apiary. Price not to exceed 15/0.
1st Prize, silver medal.
2nd Prize, bronze medal. 3rd Prize, certificate.

8. For the most economical (best and cheapest) hive, on the moveable comb principle, for Cottagers, with arrangements for summer and winter use. Price not to exceed 10/6 ... ... 1st Prize, silver medal.
2nd Prize, bronze medal. 3rd Prize, certificate.

9. For the best straw hive for depriving purposes, cost to be taken into consideration. Price not to exceed 5/0 ... ... Bronze medal.

Note.—Duplicate hives may be exhibited for the purpose of explanation, without any entrance-fee being charged. In Classes 7, 8, and 9, the Judges shall exercise their discretion as to whether the Hives can be made and sold with a reasonable profit at the prices stated.

SUPERS.

10. For the cheapest, neatest, and best supers for harvesting honey in the comb in a saleable form ... 1st Prize, silver medal.
2nd Prize, bronze medal. 3rd Prize, certificate.

HONEY.

Quality to be taken into Consideration.

11. For the best exhibition of super honey from one apiary 40/0 20/0 10/0

12. For the best super of honey. The super to be of wood, straw, or of wood in combination with glass or straw.
Five Prizes—20/0 15/0 12/6 7/6 5/0

13. For the best glass super of honey.
Five Prizes— 20/0 15/0 12/6 7/6 5/0

14. For the best exhibition of comb honey in sections, each not more than 3 lbs. in weight, the total weight of each entry not to be less than 20 lbs. 30/0 20/0 15/0 10/0 5/0

15. For the best 10 sections of comb honey, each section weighing not more than 3 lbs. 20/0 10/0 5/0

16. For any fanciful device in comb honey worked by bees ... ... 1st Prize, 15/0
2nd ,, 10/0

17. For the largest and best exhibition of run or extracted honey in glasses, not to exceed 2 lbs. each ... 30/0 20/0 12/6 7/6

18. For the best sample of comb foundation (worker cells) made of pure bees' wax, not less than 10 lbs. in weight, manufactured in the United Kingdom, with price per pound attached ... ... Silver medal

In Class 14, aggregate weight not to be taken into consideration.

COTTAGERS' CLASSES (No Entrance Fee).

19. For the largest and best exhibition of comb honey, the property of one exhibitor, and gathered by his own bees—
Special Prizes—1st Prize, 20/0 and hive.
2nd ,, 10/0 and hive.
3rd ,, 5/0 and certificate.

20. For the best super of honey ... 20/0 15/0 10/0 5/0

21. For the largest and best exhibition of comb-honey in sections, each section not to exceed 3 lbs. in weight 20/0 15/0 10/0 5/0

Class. Prizes.

22. For the best exhibition of run or extracted honey in small glass jars, not to exceed 2 lbs. each. Total weight of each entry not to be less than 10 lbs. 20/0 15/0 10/0 5/0

Classes 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, are open to British Exhibitors only, and the Honey exhibited in these Classes must be *bonâ fide* the produce of 1880, and gathered in the natural way by the Exhibitor's own bees, in the United Kingdom.

FOREIGN AND COLONIAL CLASSES.

23. For the largest and best exhibit of honey in the comb, either in sectional or other supers, the total weight of each entry to be not less than 12 lbs. 40/0 30/0 20/0

24. For the best exhibition of run or extracted honey in glass jars, not to exceed 2 lbs. each 20/0 15/0 10/0

25. For the best sample of comb foundation (worker cells) made of pure bees' wax, not less than 10 lbs. in weight, with price per pound attached ... ... Silver medal

Classes 23, 24, and 25 are open to Foreign and Colonial Exhibitors only.

COMESTIBLES.

26. For the best mead or metheglin made from honey, with recipe attached
1st Prize, bronze medal
2nd ,, certificate

MISCELLANEOUS.

27. For the best and largest collection of hives, bee-furniture, most applicable to modern Bee-keeping, no two articles to be alike 1st Prize, silver medal
2nd ,, bronze medal
3rd ,, certificate

28. For the best honey extractor— 1st Prize, silver medal
2nd ,, bronze medal
3rd ,, certificate

29. For the finest sample of pure bees' wax, not less than 3 lbs. in weight produced by the Exhibitor's own bees 10/0 7/6 5/0 2/6

30. For any invention calculated in the opinion of the Judges to advance the culture of bees—
Silver or bronze medal, at the discretion of the Judges.

31. For the best microscopic slides illustrating the natural history of the honey bee ... ... Silver medal

32. For the best and largest display of British Bee Flora in a dried state or otherwise, each plant or specimen must have a card attached stating time of flowering, duration of bloom, and any other particulars calculated to be of interest to bee-keepers ... ... 1st Prize, silver medal
2nd ,, bronze medal
3rd ,, certificate

33. For the best and cheapest pair of honey jars, with covers and fastenings complete, to contain 1 lb. and 2lb. each of extracted honey ... ... 1st Prize, 10/6
2nd ,, 7/6
3rd ,, 5/6

SCHEDULE OF PRIZES—Continued.

Class. Prizes.

34. For the best set of diagrams illustrating the honey bee ... ... Bronze Medal

35. A separate Class will be open for the exhibition of hives and apiarian appliances at present used in other countries, as well as any utensils, obsolete or curious, which are likely to prove attractive and interesting to Bee-keepers. *No entrance fee will be required in this Class*, and gentlemen in a position to send such objects of interest, will oblige by communicating with the Honorary Secretary as early as possible.

36. HONEY FAIR.—A distinct counter will be appropriated to the exhibition and sale of honey in the comb and in glass jars, bees' wax, and small apiarian appliances, and in this department goods may be purchased and delivered at all times during the show. Every exhibit at this counter must have distinctly marked upon it the price, which must include the package that contains it. The Association will provide a salesman, but will not undertake to break bulk. Invoices of the weights and prices of each consignment must be forwarded to the Secretary previous to the goods being placed upon the counter for sale, unless such Invoice has been received the Association will not be responsible for them.

Class. Prizes.

37. Driving Competition.—For the competitor, who shall in the neatest, quickest, and most complete manner, drive out the bees from a straw skep, capture and exhibit the queen

1st Prize, silver medal and 20/0
2nd ,, bronze medal and 10/0
3rd ,, certificate and 5/0

Each competitor shall bring his own bees in the straw skep in which they have worked and bred. The system of open driving shall be adopted; the receiving hive to be inclined at such an angle as shall permit the passage of the bees to be viewed by the spectators. The driving shall be considered complete notwithstanding a few straggling bees may be left in the hive, but total removal should be aimed at. No combs shall be wilfully removed, nor broken. The queen must be captured and confined in a glass-covered cage (to be provided by the Association) and handed to the Judges for their inspection. No veils or gloves to be worn. Any dispute, or difference of opinion, shall be referred to the Judges present, whose decision shall be final. The bees may be returned to their hives, and removed or sold at their owner's pleasure. No commission will be charged on bees so sold. The competitors must be ready to commence the competition at 2 o'clock.

The Classes for Hives, Supers, Bees, and Comestibles, together with the Miscellaneous Class, the Honey Fair, and the Driving Competition, are open to Foreigners or Residents in the English Colonies, as well as to dwellers in the United Kingdom.

Advertisements will be inserted in the Catalogue of the South Kensington Show, July 27 to August 2, at the rates of—Whole page, *1l. 1s.*; Half page, *12s. 6d.*; Quarter page, *7s. 6d.* Persons desirous of Advertising in the same are requested to communicate with the Secretary as early as possible.

One Penny in the Shilling will be charged as commission on all orders taken, and Sales effected in the various Classes throughout the Show. All Sales (with the exception of those in the Honey Fair) must be effected at the Secretary's Office, where all orders for Hives and other articles exhibited in the various classes must also be registered. All Honey remaining unsold at the close of the Show will be sold by auction to the highest bidder if the Exhibitor give his written consent to such an arrangement when he returns his Entry Form to the Secretary.

A Ticket for Free Admission to the Show for three days will be forwarded to each Exhibitor, and to all Members of the Association who have paid their Subscriptions for the current year.

Donations in aid of the Prize Fund for the South Kensington Show, and for the Prizes offered by the Association for Bees, Hives, and Honey at the Dairy Show, to be held at the Agricultural Hall, Islington, October 26th and following days, will be thankfully received by the Hon. Secretary.

HERBERT R. PEEL, Hon. Sec.

British Bee-keepers' Association.

EXPERTS WANTED to accompany the Bee Tent to Horticultural and other Shows, conduct Manipulations, and give short and practical Lectures on the best Methods of Bee Management, Terms: 10*s.* 6*d.* per day, and Third Class Railway fare. Allowance made for necessary expenses.

DEVON AND EXETER ASSOCIATION.

FIXTURES FOR LECTURES.

Mr. F. R. CHESHIRE.

April 12. Museum, Exeter, in connexion with the General Meeting of the Association.

April 13. Exeter. April 15. Torquay.
,, 14. Tiverton. ,, 16. Plymouth.

Full particulars of
W. N. GRIFFIN, Rock House, Alphington, Exeter.

SELLING OFF.—A number of Bar-frame HIVES, Supers, Feeders, two 'Slingers,' Fumigators, &c. Address C. Lyon, Oakleigh, Sunninghill. fo. 42

THE BRITISH BEE JOURNAL.

WE have some hundreds of Surplus Numbers of the Journal, of various dates, yet not complete as Sets, and shall be glad to send out any number of them, for distribution amongst Cottagers and intending Bee-keepers, at 2*s.* per dozen, post free. Every number contains valuable information, and their perusal may cause many to adopt the better system of Bee-keeping. They will never be out of date because they contain the truth.

Office: Fairlawn, Southall, London.

THE GREAT HAMPSHIRE BEE FARM, near Stockbridge: Its Principles and Method of Working. Also,

THE BEE-KEEPER'S ALMANAC, which contains Prognostications of Weather expected, and What to Do in Bee Management. By P. E. Martin, Master Mariner, Bee Master, Proprietor and Manager of the Bee Farm, Inventor of the 'Sailors' Bee-Hive,' now the 'Standard' Bar-frame Hive for the United Kingdom. Price 6*d.* each, per post 7*d.*

Choice Honey, in 5 lb. Tins, sent, Railway carriage paid as far as S. W. R. Co. have through rates, on receipt of P.O.O. for 6*s.* 6*d.* payable at Stockbridge.

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INVENTORS and MANUFACTURERS of BAR-FRAME HIVES

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AMERICAN FLAT-BOTTOMED COMB FOUNDATION.

Messrs. ABBOTT BROS., Fairlawn, Southall, London, have been appointed Sole Agents in the United Kingdom for the 'VAN DEUSEN NELLIS IMPROVED COMB FOUNDATION.'

THE PATENT FLAT-BOTTOMED COMB FOUNDATION, with or without Wire, is one of the greatest and most successful Novelties ever introduced into the Apiary, entirely superseding the ordinary fragile material. That with Wire running through it, for Stock Hives, cannot stretch; Frames may be filled with it with safety. That without Wire is very light, and in Supers, Sections, &c. does not form a back-bone in the honey-comb raised upon it.

Prices of either kind:—1 to 5 lb., *3s. 4d.*; 5 to 10 lb., *3s. 3d.*; 10 to 25 lb., *3s. 2d.*; 25 to 50 lb., *3s.*; 50 to 100 lb., *2s. 9d.* per lb. If cut to sizes, *6d.* per lb. extra must be charged.

MESSRS. ABBOTT BROS. have to apologize for their inability to advertise Prices of other Goods which were supposed to have been forwarded, but have not yet come to hand.

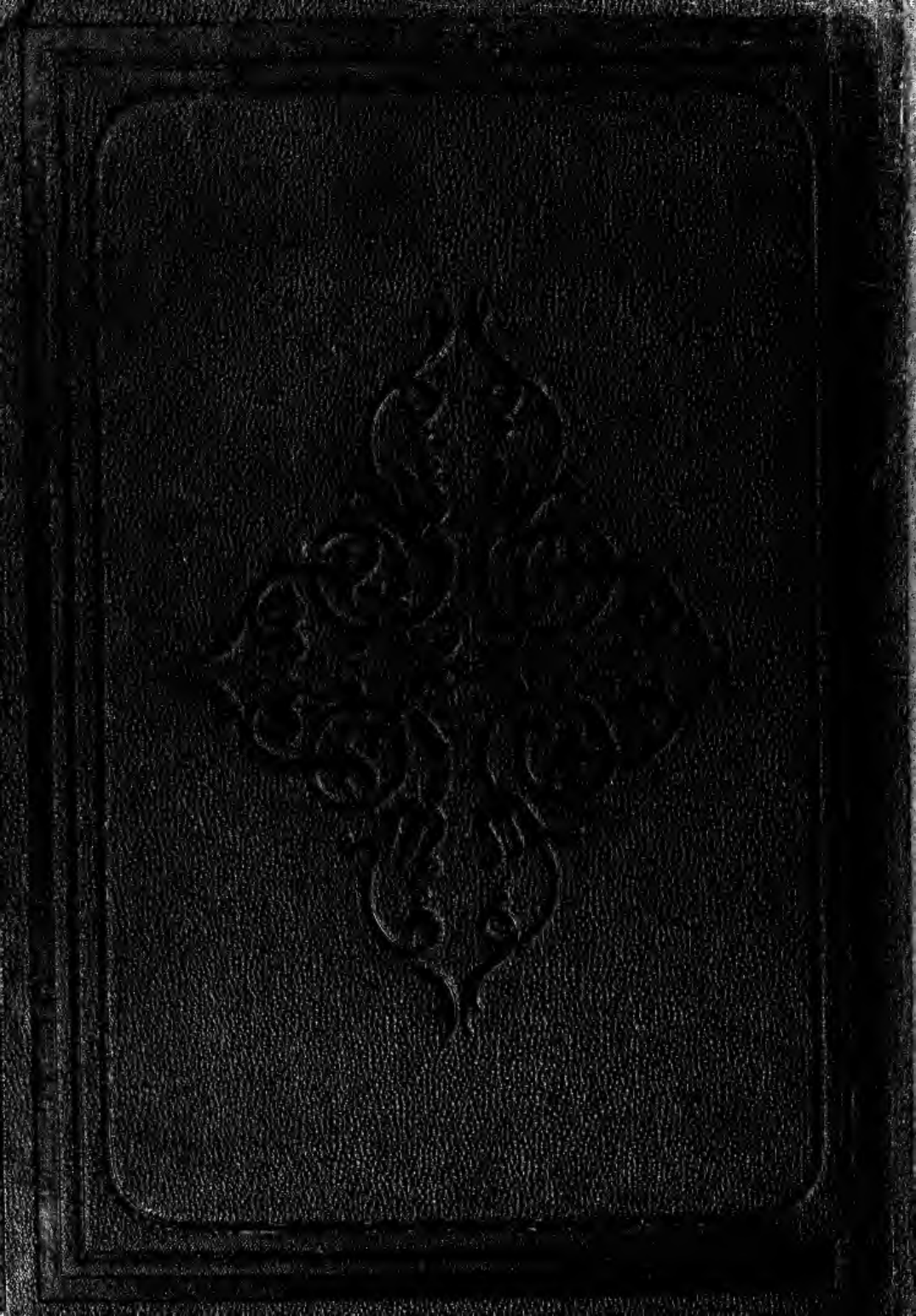
There are a few each of the NELLIS VAN DEUSEN SIMPLICITY, the HALF-STORY ditto, and the LANGSTROTH SIMPLICITY HIVES. They arrived in pieces, and to the uninitiated would be puzzling; but they will be put together and sold as Patterns to those who desire to have them.

ABBOTT BROS. have ordered large Consignments of PRIZE BOXES, SECTIONS, &c., which they hope to Catalogue at low prices in full time for the coming campaign.

The First Prize EVERETT HONEY EXTRACTOR, exhibited at the Kilburn and Kensington Shows, 1879, for Sale, price £4 10*s.* A very great bargain. The only one in England.

The BINGHAM HETHERINGTON SMOKER, the best thing of the kind known in America. Prices:—Sizes, 1¾ inch, 4*s.* 6*d.*; 2 inch, 6*s.* 6*d.*; 2½ inch, 7*s.* 6*d.*

ABBOTT Bros., Fairlawn, Southall, London.

Send Two Stamps for Illustrated Catalogue of Hives and Bee Furniture.

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